FCC PART 15, SUBPART B and C
TEST REPORT

for

BASE STATION

MODEL: 15010303-A

Prepared for

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DATE: DECEMBER 28, 2010

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
PAGES	20	2	2	2	11	65	**106**

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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 for Brea Facility	12
6. TEST SITE DESCRIPTION	**13**
6.1 Test Facility Description	13
6.2 EUT Mounting, Bonding and Grounding	13
7. CHARACTERISTICS OF THE TRANSMITTER	**14**
7.1 Antenna Gain	14
8. TEST PROCEDURES	**15**
8.1 RF Emissions	15
8.1.1 Conducted Emissions Test	15
8.1.2 Radiated Emissions (Spurious and Harmonics) Test	16
8.2 6 dB Bandwidth	18
8.3 Peak Output Power	18
8.4 RF Antenna Conducted Test	18
8.5 Spectral Density Output	19
8.6 RF Band Edges	19
9. CONCLUSIONS	**20**

LIST OF APPENDICES

APPENDIX	TITLE
A	Laboratory Accreditations and Recognitions
B	Modifications to the EUT
C	Additional Models Covered Under This Report
D	Diagrams, Charts, and Photos • Test Setup Diagrams • Radiated and Conducted Emissions Photos • Antenna and Effective Gain Factors
E	Data Sheets

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map and Layout of 3 Meter Radiated Site

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 endorsement by NVLAP, NIST, or any other agency of the U.S. Government.

Device Tested:	Base Station Model: 15010303-A S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Smartfield, Inc. 2601 SE Loop 289 Lubbock, Texas 79404
Test Dates:	December 8, 9, 14, 15, and 16, 2010
Test Specifications:	EMI requirements Limits: CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247
Test Procedure:	ANSI C63.4
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207 Highest reading in relation to spec limit: 46.93 dBuV @ 24.998 MHz (*U = 1.00 dB)
2	Spurious Radiated RF Emissions, 10 kHz – 9.3 GHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(d) Highest reading in relation to spec limit: 39.98 dBuV @ 199.99 MHz (*U = 3.18 dB)
3	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209(a), and section 15.247 (d)
5	6 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(a)(2)
6	Peak Power Output	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(b)(3)
7	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
8	Peak Power Spectral Density Conducted from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Base Station, Model: 15010303-A. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. 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; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests of the testing described herein were performed at the test facility of Compatible Electronics at 114 Olinda Drive, Brea, California 92823.

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

Smartfield, Inc.

Tommy Martin	CEO
Joel Hohenberger	Engineer

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer
Alex Benitez	Test Technician

2.4 Date Test Sample was Received

The test sample was received prior to the first date of testing.

2.5 Disposition of the Test Sample

The sample has not been returned to Smartfield, Inc. as of December 27, 2010.

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
LO	Local Oscillator
LISN	Line Impedance Stabilization Network
NCR	No Calibration Required
N/A	Not Available or Not Applicable
Tx	Transmitter
Rx	Receive or Receiver

3. APPLICABLE DOCUMENTS

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

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 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
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation modes of the equipment under test.

Specifics of the EUT and Peripherals Tested

AC Power Mode: The Base Station, Model: 15010303-A (EUT), was connected to a rain pod, RH pod, AC Adapter, RF antenna, and cellular antenna via its rain pod, RH pod, 12 volt in, RF out, and cellular out ports, respectively. A USB dongle was directly connected to the USB port inside the EUT. The Ethernet, Aux 1, Aux 2 ports are non-functional and were not connected to anything.

The EUT was continuously transmitting or receiving depending on the test being performed.

Battery Mode: The Base Station, Model: 15010303-A (EUT) was connected to a rain pod, RH pod, RF antenna, and cellular antenna via its rain pod, RH pod, RF out, and cellular out ports, respectively. A USB dongle was directly connected to the USB port inside the EUT. The Ethernet, Aux 1, Aux 2 ports are non-functional and were not connected to anything.

The EUT was continuously transmitting or receiving depending on the test being performed.

The channel for the EUT was changed via connecting a serial cable from the EUT's diagnostic port to a computer system. This cable was only connected when the channel needed to be changed and was removed during the testing. This cable is only connected for development and testing purposes and is not available to the end user.

Note: Two different antennas will be used on the RF output. As both antennas are of the same type, only the highest gain version was tested.

It was determined that the emissions were at their highest level when the EUT was operating in the above configurations. The final emissions data was taken in these modes of operation and any cables were maximized. All initial investigations were performed with the measurement receive in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

Cable 1 This is a 10-meter unshielded cable connecting the rain pod to the EUT. The cable has an RJ-11 connector at the EUT end and is hared wired into the rain pod. The cable was bundled to a length of 1.5 meters.

Cable 2 This is a 1-meter braid shielded cable connecting the EUT to the cellular antenna. The cable has a BNC connector at the EUT end and is hard wired into the cellular antenna. The shield of the cable was grounded to the chassis via the connector.

Cable 3 This is a 1-meter unshielded cable connecting the EUT to the RH pod. The cable has an RJ-11 connector at each end.

Cable 4 This is a 2.5 meter braid shielded cable connecting the EUT to the RF antenna. The cable has an SMA connector at the EUT end and is hard wired into the RF antenna. The cable was bundled to a length of 1-meter. The shield of the cable was grounded to the chassis via the connector.

Cable 5 **(For AC Power Mode Only)**
This is a 2-meter unshielded cable connecting the EUT to the AC Adapter. The cable has a 1/8 inch power connector at the EUT end and is hard wired into the AC Adapter. The cable was bundled to a length of 1-meter.

Cable 6 **(To Change Channels Only)**
This is a 20-centimeter unshielded cable connecting the EUT to the TTL converter. The cable has a 14 pin connector at the EUT end and a D-9 pin metallic connector at the TTL converter end.

Cable 7 **(To Change Channels Only)**
This is a 2-meter braid and foil shielded cable connecting the computer to the TTL converter. The cable has a D-9 pin metallic connector at each end. The shield of the cable was grounded to the chassis via the connectors.

Cable 8 **(To Change Channels Only)**
This is a 2-meter braid and foil shielded connecting the computer to the monitor. The cable has a high desntiy D-15 metallic connector at at the computer end and is hard wired into the monitor. The shield of the cable was grounded to the chassis via the connector.

Cable 9 **(To Change Channels Only)**
This is a 2-meter foil shielded connecting the computer to the keyboard. The cable has a 6 pin mini DIN connector at the computer end and is hard wired into the keyboard. The shield of the cable was grounded to the chassis via the connector.

Cable 10 **(To Change Channels Only)**
This is a 2-meter foil shielded connecting the computer to the mouse. The cable has a 6 pin mini DIN connector at the computer end and is hard wired into the mouse. The shield of the cable was grounded to the chassis via the connector.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
BASE STATION (EUT)	SMARTFIELD, INC.	15010303-A	N/A	**W9B15010303-A**
AC ADAPTER	PHIHONG MJP	PSAA15W-120	N/A	**N/A**
RH POD	SMARTFIELD, INC.	N/A	N/A	**N/A**
RAIN POD	SMARTFIELD, INC.	N/A	N/A	**N/A**
CELLULAR ANTENNA	N/A	N/A	N/A	**N/A**
RF ANTENNA	N/A	TQC-800/1900-5B	N/A	**N/A**
USB DONGLE	DIGI	N/A	N/A	**N/A**
BATTERY	POWER SONIC	PS-612	N/A	**N/A**
TTL CONVERTER (for changing channels only)	B&B ELECTRONICS	232LPTTL33	N/A	**N/A**
COMPUTER (for changing channels only)	DELL	DH6	HC7R431	**DoC**
MONITOR (for changing channels only)	ALAWAR	P/N: 997-2282-00	23T234400800	**DoC**
KEYBOARD (for changing channels only)	DELL	RT7D20	CN-04N454-37172-4C3-010J	**AQ6-7D20**
MOUSE (for changing channels only)	DELL	M056V0A	G0P028G6	**DoC**

5.2 EMI Test Equipment for Brea Facility

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100218	April 9, 2009	April 9, 2011
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Biconical Antenna	Com-Power	AB-900	15250	June 18, 2010	June 18, 2011
Log Antenna	Com-Power	AL-100	16252	June 9, 2010	June 9, 2011
Preamplifier	Com-Power	PA-102	1017	January 6, 2010	January 6, 2011
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	September 29, 2011
Microwave Preamplifier	Com-Power	PA-122	181921	March 10, 2010	March 10, 2011
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12078	June 14, 2010	June 14, 2011
LISN	Com Power	LI-215	12082	June 14, 2010	June 14, 2011
Transient Limiter	Seward	252A910	1	November 2, 2010	November 2, 2011

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 was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Antenna Gain

The Model: BBT-Q081805GH antenna has a gain of 5 dBi. The Model: TQC-800 / 1900-3B antenna has a gain of 3 dBi. As both antennas are of the same type, only the Model: BBT-Q081805GH antenna was tested.

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. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. 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 was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. 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 Compatible Electronics conducted emissions software in several overlapping sweeps by running the EMI Receiver at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Section 15.207 for conducted emissions.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifiers Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies from 1 GHz to 9.3 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

The quasi-peak function was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. 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 by the Radiated Emission Manual Test software. 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 gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3-meter test distance to obtain the final data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247 (d). Please see the data sheets located in Appendix E.

8.2 6 dB Bandwidth

The 6 dB bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF out on the EUT. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (a)(2).

8.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 3 MHz and the video bandwidth was 10 MHz. The cable loss was also added back into the reading using the reference level offset.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (b)(3).

8.4 RF Antenna Conducted Test

The RF antenna conducted test was taken using the EMI Receiver. The RF antenna conducted test was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth 1 MHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (d).

8.5 Spectral Density Output

The spectral density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

This test complies with the relevant requirements of CFR Title 47, Part 15, Subpart C section 15.247 (e).

8.6 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The RBW was set to 100 kHz and the VBW was set to 300 kHz. Plots of the fundamental were taken to ensure the amplitude at the band edges were at least 20 dB down from the peak of the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

9. CONCLUSIONS

The Base Station, Model: 15010303-A (EUT), as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 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, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

Agoura Division / **Brea Division** / **Silverado/Lake Forest Division**

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

ANSI listing CETCB

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

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).
APEC MRA list NIST MRA site

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

VCCI Support member: Please visit http://www.vcci.jp/vcci_e/

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

The modifications listed below were made to the EUT to pass FCC Subpart B and Subpart C specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Base Station
Model: 15010303-A
S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

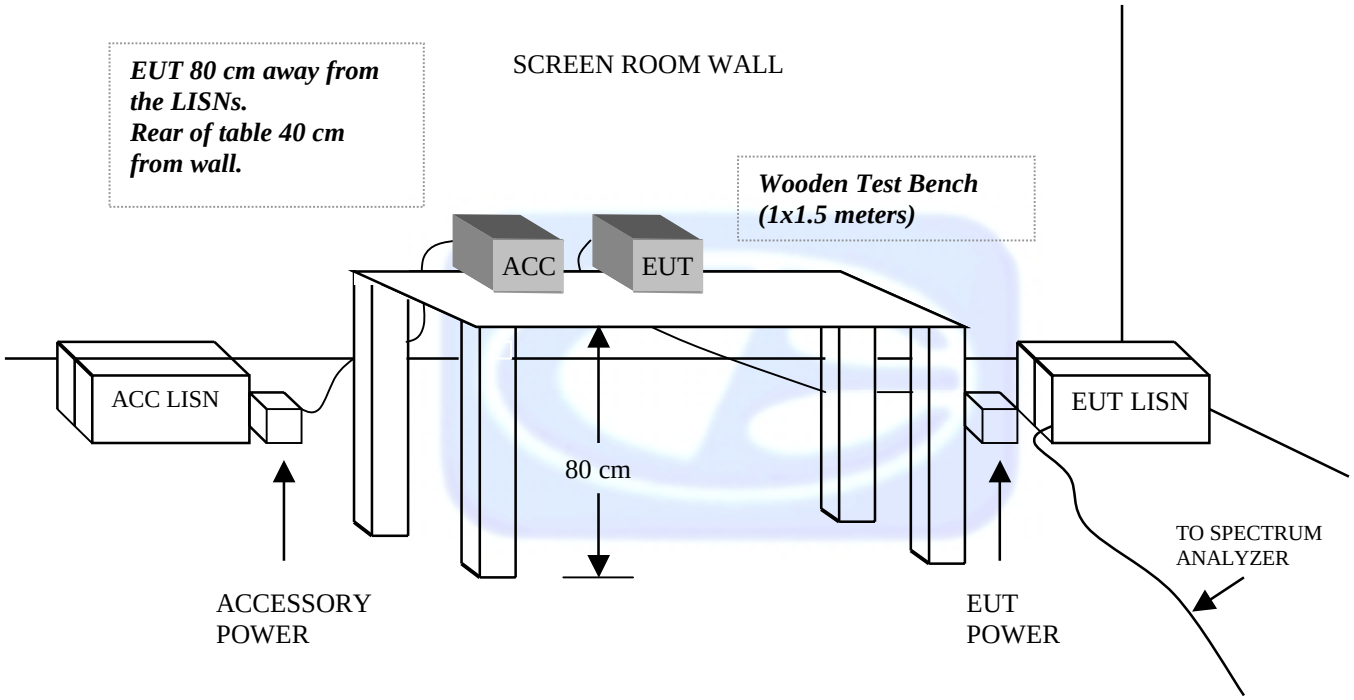
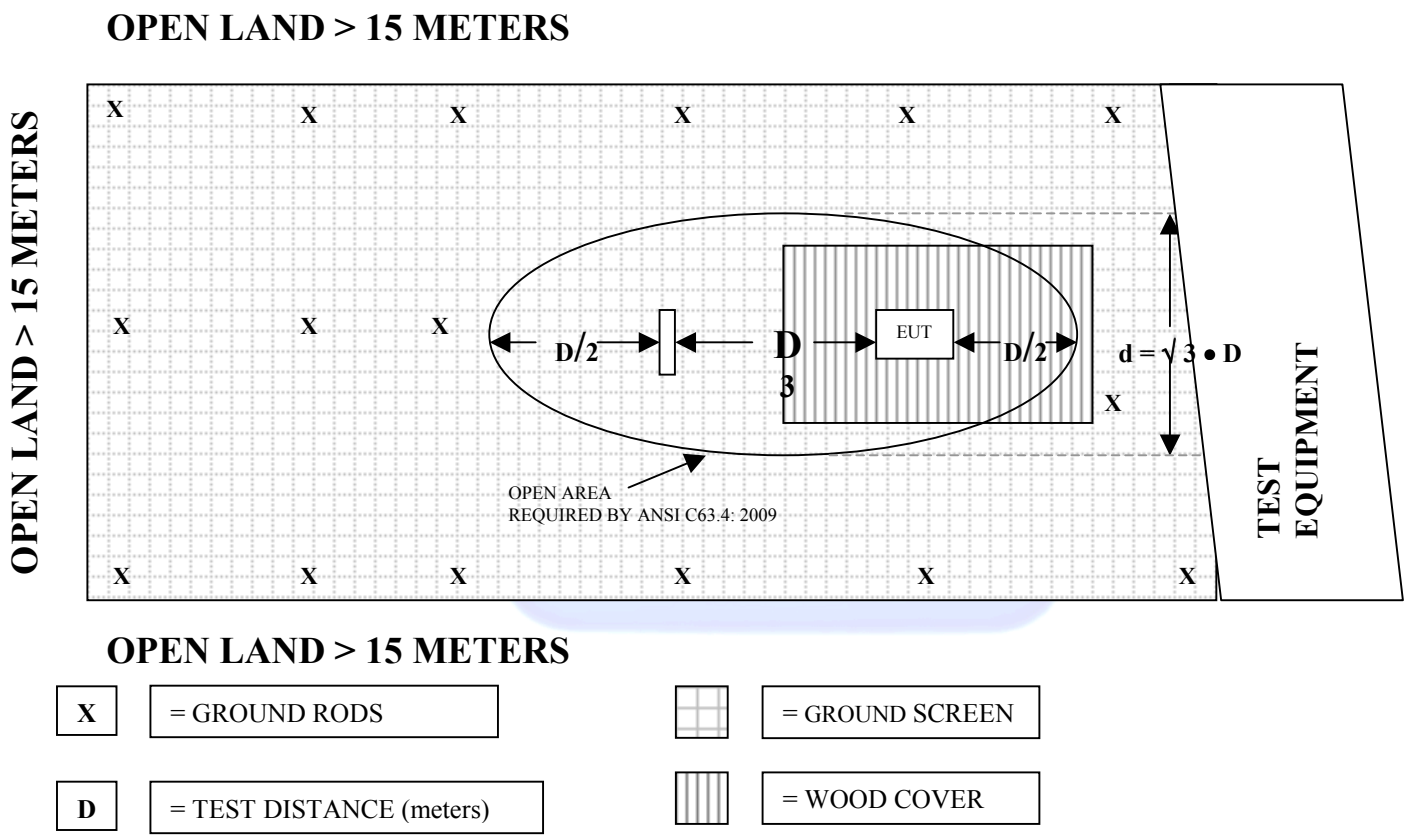


FIGURE 2: PLOT MAP AND LAYOUT OF 3 METER RADIATED SITE



FRONT VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – RADIATED EMISSIONS – BATTERY POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – RADIATED EMISSIONS – BATTERY POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – RADIATED EMISSIONS – AC POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – RADIATED EMISSIONS – AC POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – CONDUCTED EMISSIONS – AC POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

SMARTFIELD, INC.
BASE STATION
MODEL: 15010303-A
FCC SUBPART B and C – CONDUCTED EMISSIONS – AC POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15250

CALIBRATION DATE: JUNE 18, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.8	100	11.5
35	11.3	120	13.6
40	10.8	140	12.5
45	10.1	160	13.2
50	11.0	180	15.5
60	11.1	200	16.9
70	7.3	250	16.4
80	7.5	275	18.7
90	8.3	300	19.5

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: JUNE 9, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.7	700	19.5
400	16.1	800	20.9
500	16.9	900	20.8
600	20.1	1000	21.5

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 6, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.3	300	38.2
40	38.4	350	38.1
50	38.2	400	38.5
60	38.2	450	38.0
70	38.3	500	37.9
80	38.1	550	38.2
90	38.2	600	38.2
100	38.3	650	37.7
125	38.2	700	38.3
150	38.3	750	38.3
175	38.3	800	37.4
200	38.1	850	37.5
225	38.2	900	37.6
250	38.3	950	37.4
275	38.2	1000	37.3

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM-POWER PA-122

PREAMPLIFIER

S/N: 181921

CALIBRATION DATE: MARCH 10, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	35.53	10.0	34.78
1.5	34.92	10.5	34.36
2.0	34.63	11.0	33.14
2.5	34.42	11.5	34.42
3.0	34.40	12.0	34.24
3.5	34.36	12.5	34.95
4.0	34.11	13.0	34.62
4.5	33.61	13.5	35.24
5.0	33.83	14.0	35.40
5.5	34.53	14.5	36.66
6.0	35.09	15.0	35.98
6.5	35.58	15.5	35.94
7.0	36.50	16.0	35.80
7.5	34.83	16.5	34.98
8.0	34.08	17.0	35.00
8.5	33.57	17.5	34.25
9.0	34.68	18.0	33.51
9.5	35.84	18.5	32.88

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

Low Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.16		V	--	--	Peak			Measurement
904.16		V	--	--	Avg			Taken via Conducted
1808.3		V	--	--	Peak			Not in
1808.3		V	--	--	Avg			Restricted Band
2712.4	37.48	V	74	-36.52	Peak	1.25	135	
2712.4	26.84	V	54	-27.16	Avg	1.25	135	
3616.6	39.47	V	74	-34.53	Peak	1.35	145	
3616.6	24.46	V	54	-29.54	Avg	1.35	145	
4520.8	45.01	V	74	-28.99	Peak	1.25	155	
4520.8	30.05	V	54	-23.95	Avg	1.25	155	
5424.9	49.69	V	74	-24.31	Peak	1.35	165	
5424.9	36.31	V	54	-17.69	Avg	1.35	165	
6329.1								No Emission
6329.1								Detected
7233.2								No Emission
7233.2								Detected
8137.4								No Emission
8137.4								Detected
9041.6								No Emission
9041.6								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

Low Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.16		H	--	--	Peak			Measurement
904.16		H	--	--	Avg			Taken via Conducted
1808.3		H	--	--	Peak			Not in
1808.3		H	--	--	Avg			Restricted Band
2712.4	37.89	H	74	-36.11	Peak	1.25	165	
2712.4	24.59	H	54	-29.41	Avg	1.25	165	
3616.6	36.83	H	74	-37.17	Peak	1.35	175	
3616.6	24.04	H	54	-29.96	Avg	1.35	175	
4520.8	43.09	H	74	-30.91	Peak	1.25	185	
4520.8	30.04	H	54	-23.96	Avg	1.25	185	
5424.9	51.39	H	74	-22.61	Peak	1.35	195	
5424.9	38.67	H	54	-15.33	Avg	1.35	195	
6329.1								No Emission
6329.1								Detected
7233.2								No Emission
7233.2								Detected
8137.4								No Emission
8137.4								Detected
9041.6								No Emission
9041.6								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

Middle Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
913.94		V	--	--	Peak			Measurement
913.94		V	--	--	Avg			Taken via Conducted
1827.88		V	--	--	Peak			Not in
1827.88		V	--	--	Avg			Restricted Band
2741.82	45.87	V	74	-28.13	Peak	1.25	155	
2741.82	34.02	V	54	-19.98	Avg	1.25	155	
3655.76	39.03	V	74	-34.97	Peak	1.35	165	
3655.76	24.93	V	54	-29.07	Avg	1.35	165	
4569.7	45.63	V	74	-28.37	Peak	1.25	175	
4569.7	32.92	V	54	-21.08	Avg	1.25	175	
5483.64		V	--	--	Peak			Not in
5483.64		V	--	--	Avg			Restricted Band
6397.58								No Emission
6397.58								Detected
7311.52								No Emission
7311.52								Detected
8225.46								No Emission
8225.46								Detected
9139.4								No Emission
9139.4								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

Middle Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
913.94		H	--	--	Peak			Measurement
913.94		H	--	--	Avg			Taken via Conducted
1827.88		H	--	--	Peak			Not in
1827.88		H	--	--	Avg			Restricted Band
2741.82	38.41	H	74	-35.59	Peak	1.35	155	
2741.82	24.93	H	54	-29.07	Avg	1.35	155	
3655.76	39.43	H	74	-34.57	Peak	1.25	175	
3655.76	24.17	H	54	-29.83	Avg	1.25	175	
4569.7	45.16	H	74	-28.84	Peak	1.35	155	
4569.7	33.17	H	54	-20.83	Avg	1.35	155	
5483.64		H	--	--	Peak			Not in
5483.64		H	--	--	Avg			Restricted Band
6397.58								No Emission
6397.58								Detected
7311.52								No Emission
7311.52								Detected
8225.46								No Emission
8225.46								Detected
9139.4								No Emission
9139.4								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

High Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
926.17		V	--	--	Peak			Measurement
926.17		V	--	--	Avg			Taken via Conducted
1852.3		V	--	--	Peak			Not in
1852.3		V	--	--	Avg			Restricted Band
2778.5	40.61	V	74	-74	Peak	1.25	135	
2778.5	27.03	V	54	-26.97	Avg	1.25	135	
3704.6	42.71	V	74	-31.29	Peak	1.35	145	
3704.6	28.32	V	54	-25.68	Avg	1.35	145	
4630.8	49.98	V	74	-24.02	Peak	1.25	135	
4630.8	37.41	V	54	-16.59	Avg	1.25	135	
5557		V	--	--	Peak			Not in
5557		V	--	--	Avg			Restricted Band
6483.1								No Emission
6483.1								Detected
7409.3								No Emission
7409.3								Detected
8335.5								No Emission
8335.5								Detected
9261.7								No Emission
9261.7								Detected

FCC 15.247
Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/14/2010
Labs: B and D
Tested By: Kyle Fujimoto

High Channel
Battery Power Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
926.17		H	--	--	Peak			Measurement
926.17		H	--	--	Avg			Taken via Conducted
1852.3		H	--	--	Peak			Not in
1852.3		H	--	--	Avg			Restricted Band
2778.5	37.75	H	74	-36.25	Peak	1.25	165	
2778.5	23.64	H	54	-30.36	Avg	1.25	165	
3704.6	39.61	H	74	-34.39	Peak	1.35	175	
3704.6	25.97	H	54	-28.03	Avg	1.35	175	
4630.8	43.81	H	74	-30.19	Peak	1.25	165	
4630.8	30.81	H	54	-23.19	Avg	1.25	165	
5557		H	--	--	Peak			Not in
5557		H	--	--	Avg			Restricted Band
6483.1								No Emission
6483.1								Detected
7409.3								No Emission
7409.3								Detected
8335.5								No Emission
8335.5								Detected
9261.7								No Emission
9261.7								Detected

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Receiver Portion - 1 GHz to 9.3 GHz
Battery Power Mode - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Receiver Portion - 1 GHz to 9.3 GHz
Battery Power Mode - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Receiver Portion - 1 GHz to 9.3 GHz
Battery Power Mode - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
Battery Mode - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1004.07	27.44	H	54	-26.56	Peak	1.35	165	
1004.11	27.85	V	54	-26.15	Peak	1.25	135	
1104.31	28.96	H	54	-25.04	Peak	1.55	145	
1104.31	29.93	V	54	-24.07	Peak	1.35	155	
4414.12	39.16	V	54	-14.84	Peak	1.25	145	
4418.76	38.97	H	54	-15.03	Peak	1.35	155	
4619.26	39.24	H	54	-14.76	Peak	1.45	165	
4619.29	41.33	V	54	-12.67	Peak	1.35	165	
5222.33	41.72	H	54	-12.28	Peak	1.45	185	
5222.36	43.27	V	54	-10.73	Peak	1.25	175	
5322.49	43.76	H	54	-10.24	Peak	1.35	195	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
Battery Mode - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1015.61	27.52	H	54	-26.48	Peak	1.25	135	
1015.73	28.41	V	54	-25.59	Peak	1.35	155	
1116.4	31.69	V	54	-22.31	Peak	1.25	165	
1117.6	29.63	H	54	-24.37	Peak	1.35	145	
4468.92	38.31	H	54	-15.69	Peak	1.25	165	
4469.06	39.31	V	54	-14.69	Peak	1.35	175	
4670.11	40.31	H	54	-13.69	Peak	1.25	155	
4670.18	41.81	V	54	-12.19	Peak	1.35	185	
4722.37	39.89	H	54	-14.11	Peak	1.35	165	
4722.57	39.78	V	54	-14.22	Peak	1.58	175	
5281.35	44.11	V	54	-9.89	Peak	1.52	165	
5281.49	45.33	H	54	-8.67	Peak	1.25	175	
5383.25	45.31	H	54	-8.69	Peak	1.35	185	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
Battery Mode - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1028.97	26.57	V	54	-27.43	Peak	1.25	175	
1131.33	33.85	V	54	-20.15	Peak	1.35	145	
4734.05	43.77	V	54	-10.23	Peak	1.25	135	
1029	29.53	H	54	-24.47	Peak	1.25	150	
1132.49	30.04	H	54	-23.96	Peak	1.35	165	
4731.71	42.82	H	54	-11.18	Peak	1.25	175	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/08/2010
Lab: D
Tested By: Kyle Fujimoto

Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
Battery Power Mode - Middle Channel (Worst Case) - Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
30.01	30.44	V	40	-9.56	Peak	1	90	
45.13	19.05	V	40	-20.95	Peak	1	180	The EUT was verified in
49.99	36.14	V	40	-3.86	Peak	1	180	Receive Mode.
53.92	17.73	V	40	-22.27	Peak	1	180	
62.45	32.15	V	40	-7.85	Peak	1	180	The emissions are not higher
66.2	26.33	V	40	-13.67	Peak	1	180	in Receive Mode.
78.12	23.56	V	40	-16.44	Peak	1	180	
108.48	39.92	V	43.5	-3.58	Peak	1	0	
120.94	31.18	V	43.5	-12.32	Peak	1	180	
132.24	38.12	V	43.5	-5.38	Peak	1	180	
138.27	24.69	V	43.5	-18.81	Peak	1	180	
149.99	39.07	V	43.5	-4.43	Peak	1	180	
150.43	26.43	V	43.5	-17.07	Peak	1	180	
163.72	25.54	V	43.5	-17.96	Peak	1	180	
185.31	28.98	V	43.5	-14.52	Peak	1	180	
199.99	42.13	V	43.5	-1.37	Peak	1	180	
199.99	39.98	V	43.5	-3.52	QP	1	180	
279.96	29.46	V	46	-16.54	Peak	1	180	
288.64	36.32	V	46	-9.68	Peak	1	180	
300.05	25.56	V	46	-20.44	Peak	1	180	
303.85	19.71	V	46	-26.29	Peak	1	180	
310.91	17.65	V	46	-28.35	Peak	1	180	
315.02	17.69	V	46	-28.31	Peak	1	180	
336.73	23.84	V	46	-22.16	Peak	1	90	
349.95	19.97	V	46	-26.03	Peak	1	90	
384.84	25.09	V	46	-20.91	Peak	1	90	
399.96	30.84	V	46	-15.16	Peak	1	90	
432.07	22.48	V	46	-23.52	Peak	1	90	
474.95	19.91	V	46	-26.09	Peak	1	90	
479.97	29.51	V	46	-16.49	Peak	1	180	
519.97	25.92	V	46	-20.08	Peak	1	180	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/08/2010
Lab: D
Tested By: Kyle Fujimoto

Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
Battery Power Mode - Middle Channel (Worst Case) - Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
539.96	24.78	V	46	-21.22	Peak	1.25	135	
699.95	33.35	V	46	-12.65	Peak	1.35	145	The EUT was verified in
								Receive Mode.
								The emissions are not higher
								in Receive Mode.

FCC 15.247 and FCC Class B

Smartfield, Inc. Date:12/08/2010
Base Station Lab: D
Model: 15010303-A Tested By: Kyle Fujimoto

Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
Battery Power Mode - Middle Channel (Worst Case) - Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
30.01	11.48	H	40	-28.52	Peak	1	180	
45.13	15.58	H	40	-24.42	Peak	1	180	The EUT was verified in
49.99	22.16	H	40	-17.84	Peak	1.25	135	Receive Mode.
53.92	21.08	H	40	-18.92	Peak	1.35	155	
62.45	15.69	H	40	-24.31	Peak	1.25	135	The emissions are not higher
66.2	12.25	H	40	-27.75	Peak	1.35	155	in Receive Mode.
78.12	13.64	H	40	-26.36	Peak	1.45	165	
108.48	36.47	H	43.5	-7.03	Peak	2.75	180	
120.94	30.51	H	43.5	-12.99	Peak	3	90	
132.24	34.31	H	43.5	-9.19	Peak	1.25	135	
138.27	13.34	H	43.5	-30.16	Peak	1.35	155	
149.99	24.91	H	43.5	-18.59	Peak	1.25	165	
150.43	34.24	H	43.5	-9.26	Peak	2.25	180	
163.72	19.93	H	43.5	-23.57	Peak	2.15	135	
185.31	13.46	H	43.5	-30.04	Peak	1.35	155	
199.99	33.33	H	43.5	-10.17	Peak	1.25	165	
279.96	26.61	H	46	-19.39	Peak	1.35	175	
288.64	25.43	H	46	-20.57	Peak	1.25	185	
301.632	26.03	H	46	-19.97	Peak	1.25	185	
348.69	26.49	H	46	-19.51	Peak	1	180	
399.97	34.16	H	46	-11.84	Peak	1	135	
479.96	28.84	H	46	-17.16	Peak	1	135	
481.02	26.14	H	46	-19.86	Peak	1	135	
519.96	31.95	H	46	-14.05	Peak	1.5	180	
539.96	25.59	H	46	-20.41	Peak	1	180	
779.93	31.53	H	46	-14.47	Peak	1	180	
789.22	30.23	H	46	-15.77	Peak	1	180	
799.95	29.42	H	46	-16.58	Peak	1	180	
959.95	31.17	H	46	-14.83	Peak	1	180	

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

Low Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.16		V	--	--	Peak			Measurement
904.16		V	--	--	Avg			Taken via Conducted
1808.3		V	--	--	Peak			Not in
1808.3		V	--	--	Avg			Restricted Band
2712.4	38.29	V	74	-35.71	Peak	1.25	165	
2712.4	25.66	V	54	-28.34	Avg	1.25	165	
3616.6	35.99	V	74	-38.01	Peak	1.35	175	
3616.6	24.08	V	54	-29.92	Avg	1.35	175	
4520.8	44.32	V	74	-29.68	Peak	1.25	185	
4520.8	31.02	V	54	-22.98	Avg	1.25	185	
5424.9	48.46	V	74	-25.54	Peak	1.35	195	
5424.9	32.69	V	54	-21.31	Avg	1.35	195	
6329.1								No Emission
6329.1								Detected
7233.2								No Emission
7233.2								Detected
8137.4								No Emission
8137.4								Detected
9041.6								No Emission
9041.6								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

Low Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.16		H	--	--	Peak			Measurement
904.16		H	--	--	Avg			Taken via Conducted
1808.3		H	--	--	Peak			Not in
1808.3		H	--	--	Avg			Restricted Band
2712.4	37.92	H	74	-36.08	Peak	1.25	135	
2712.4	24.48	H	54	-29.52	Avg	1.25	135	
3616.6	38.07	H	74	-35.93	Peak	1.35	145	
3616.6	24.21	H	54	-29.79	Avg	1.35	145	
4520.8	42.94	H	74	-31.06	Peak	1.25	155	
4520.8	29.76	H	54	-24.24	Avg	1.25	155	
5424.9	52.25	H	74	-21.75	Peak	1.35	165	
5424.9	39.26	H	54	-14.74	Avg	1.35	165	
6329.1								No Emission
6329.1								Detected
7233.2								No Emission
7233.2								Detected
8137.4								No Emission
8137.4								Detected
9041.6								No Emission
9041.6								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

Middle Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
913.94		V	--	--	Peak			Measurement
913.94		V	--	--	Avg			Taken via Conducted
1827.88		V	--	--	Peak			Not in
1827.88		V	--	--	Avg			Restricted Band
2741.82	40.34	V	74	-33.66	Peak	1.25	135	
2741.82	25.64	V	54	-28.36	Avg	1.25	135	
3655.76	40.79	V	74	-33.21	Peak	1.35	155	
3655.76	27.13	V	54	-26.87	Avg	1.35	155	
4569.7	48.01	V	74	-25.99	Peak	1.25	180	
4569.7	35.99	V	54	-18.01	Avg	1.25	180	
5483.64		V	--	--	Peak			Not in
5483.64		V	--	--	Avg			Restricted Band
6397.58								No Emission
6397.58								Detected
7311.52								No Emission
7311.52								Detected
8225.46								No Emission
8225.46								Detected
9139.4								No Emission
9139.4								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

Middle Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
913.94		H	--	--	Peak			Measurement
913.94		H	--	--	Avg			Taken via Conducted
1827.88		H	--	--	Peak			Not in
1827.88		H	--	--	Avg			Restricted Band
2741.82	35.68	H	74	-38.32	Peak	1.25	155	
2741.82	24.35	H	54	-29.65	Avg	1.25	155	
3655.76	39.14	H	74	-34.86	Peak	1.35	180	
3655.76	24.07	H	54	-29.93	Avg	1.35	180	
4569.7	43.65	H	74	-30.35	Peak	1.25	175	
4569.7	30.45	H	54	-23.55	Avg	1.25	175	
5483.64		H	--	--	Peak			Not in
5483.64		H	--	--	Avg			Restricted Band
6397.58								No Emission
6397.58								Detected
7311.52								No Emission
7311.52								Detected
8225.46								No Emission
8225.46								Detected
9139.4								No Emission
9139.4								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

High Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
926.17		V	--	--	Peak			Measurement
926.17		V	--	--	Avg			Taken via Conducted
1852.3		V	--	--	Peak			Not in
1852.3		V	--	--	Avg			Restricted Band
2778.5	40.31	V	74	-74	Peak	1.25	135	
2778.5	26.92	V	54	-27.08	Avg	1.25	135	
3704.6	41.66	V	74	-32.34	Peak	1.35	155	
3704.6	27.53	V	54	-26.47	Avg	1.35	155	
4630.8	48.69	V	74	-25.31	Peak	1.25	165	
4630.8	35.48	V	54	-18.52	Avg	1.25	165	
5557		V	--	--	Peak			Not in
5557		V	--	--	Avg			Restricted Band
6483.1								No Emission
6483.1								Detected
7409.3								No Emission
7409.3								Detected
8335.5								No Emission
8335.5								Detected
9261.7								No Emission
9261.7								Detected

FCC 15.247

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/16/2010
Labs: B and D
Tested By: Kyle Fujimoto

High Channel
AC Mode - Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
926.17		H	--	--	Peak			Measurement
926.17		H	--	--	Avg			Taken via Conducted
1852.3		H	--	--	Peak			Not in
1852.3		H	--	--	Avg			Restricted Band
2778.5	37.93	H	74	-36.07	Peak	1.25	135	
2778.5	25.73	H	54	-28.27	Avg	1.25	135	
3704.6	40.33	H	74	-33.67	Peak	1.25	135	
3704.6	24.78	H	54	-29.22	Avg	1.25	135	
4630.8	44.56	H	74	-29.44	Peak	1.35	155	
4630.8	32.42	H	54	-21.58	Avg	1.35	155	
5557		H	--	--	Peak			Not in
5557		H	--	--	Avg			Restricted Band
6483.1								No Emission
6483.1								Detected
7409.3								No Emission
7409.3								Detected
8335.5								No Emission
8335.5								Detected
9261.7								No Emission
9261.7								Detected

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Receiver Portion - 1 GHz to 9.3 GHz
AC Mode - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Receiver Portion - 1 GHz to 9.3 GHz
AC Mode - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC Class B and RSS-210

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Receiver Portion - 1 GHz to 9.3 GHz
AC Mode - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found for the
								Receiver Mode
								from 1 GHz to 9.3 GHz
								for both Vertical and Horizontal
								Polarizations

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
AC Power Mode - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1004.07	28.24	H	54	-25.76	Peak	1.25	135	
1004.11	27.86	V	54	-26.14	Peak	1.35	145	
1104.31	28.44	H	54	-25.56	Peak	1.25	145	
1104.31	29.81	V	54	-24.19	Peak	1.35	165	
4414.12	39.48	V	54	-14.52	Peak	1.25	165	
4418.76	38.78	H	54	-15.22	Peak	1.35	165	
4619.26	38.39	H	54	-15.61	Peak	1.25	155	
4619.29	41.11	V	54	-12.89	Peak	1.35	165	
5222.33	41.81	H	54	-12.19	Peak	1.35	175	
5222.36	43.01	V	54	-10.99	Peak	1.25	185	
5322.49	42.07	H	54	-11.93	Peak	1.25	165	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
AC Power Mode - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1015.61	28.02	H	54	-25.98	Peak	1.5	180	
1015.73	28.95	V	54	-25.05	Peak	1.5	180	
1116.4	32.26	V	54	-21.74	Peak	1.5	180	
1117.6	30.19	H	54	-23.81	Peak	1.25	225	
4468.92	38.96	H	54	-15.04	Peak	1.35	135	
4469.06	41.01	V	54	-12.99	Peak	1.5	225	
4670.11	40.31	H	54	-13.69	Peak	1.35	180	
4670.18	43.64	V	54	-10.36	Peak	1.25	135	
4722.37	39.53	H	54	-14.47	Peak	1.35	145	
4722.57	42.76	V	54	-11.24	Peak	1.35	155	
5281.35	45.86	V	54	-8.14	Peak	1.45	165	
5281.49	45.21	H	54	-8.79	Peak	1.35	175	
5383.25	45.21	H	54	-8.79	Peak	1.25	185	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/15/2010
Labs: B and D
Tested By: Alex Benitez

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz
AC Power Mode - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1028.97	30.48	V	54	-23.52	Peak	1.25	165	
1131.33	34.61	V	54	-19.39	Peak	1.35	175	
4734.05	45.15	V	54	-8.85	Peak	1.25	185	
1029	28.24	H	54	-25.76	Peak	1.35	175	
1132.49	30.39	H	54	-23.61	Peak	1.25	195	
4731.71	43.29	H	54	-10.71	Peak	1.35	205	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/09/2010
Lab: D
Tested By: Kyle Fujimoto

Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
AC Power Mode - Middle Channel (Worst Case) - Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
30.01	32.64	V	40	-7.36	Peak	1	90	
45.13	20.75	V	40	-19.25	Peak	1	180	The EUT was verified in
49.99	22.17	V	40	-17.83	Peak	1	180	Receive Mode.
53.92	16.55	V	40	-23.45	Peak	1	180	
62.45	25.64	V	40	-14.36	Peak	1	180	The emissions are not higher
66.2	27.16	V	40	-12.84	Peak	1	180	in Receive Mode.
78.12	32.91	V	40	-7.09	Peak	1	180	
84.23	33.98	V	40	-6.02	Peak	1	0	
99.12	33.01	V	43.5	-10.49	Peak	1	0	
112.4	40.31	V	43.5	-3.19	Peak	1	180	
132.24	34.89	V	43.5	-8.61	Peak	1	180	
138.27	28.36	V	43.5	-15.14	Peak	1	180	
149.99	34.86	V	43.5	-8.64	Peak	1	180	
150.43	25.89	V	43.5	-17.61	Peak	1	180	
163.72	32.79	V	43.5	-10.71	Peak	1	180	
185.31	29.74	V	43.5	-13.76	Peak	1	180	
199.99	42.56	V	43.5	-0.94	Peak	1	180	
199.99	40.54	V	43.5	-2.96	QP	1	180	
279.96	39.63	V	46	-6.37	Peak	1	180	
288.64	32.41	V	46	-13.59	Peak	1	180	
300.05	27.66	V	46	-18.34	Peak	1	180	
303.85	21.21	V	46	-24.79	Peak	1	180	
310.91	20.86	V	46	-25.14	Peak	1	180	
315.02	20.58	V	46	-25.42	Peak	1	180	
336.73	27.14	V	46	-18.86	Peak	1	90	
349.95	27.81	V	46	-18.19	Peak	1	90	
384.84	29.61	V	46	-16.39	Peak	1	90	
399.96	34.96	V	46	-11.04	Peak	1	90	
432.07	22.31	V	46	-23.69	Peak	1	90	
474.95	22.06	V	46	-23.94	Peak	1	90	
479.97	35.36	V	46	-10.64	Peak	1	180	
519.97	33.52	V	46	-12.48	Peak	1	180	

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/09/2010
Lab: D
Tested By: Kyle Fujimoto

Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
AC Power Mode - Middle Channel (Worst Case) - Vertical Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
539.96	24.28	V	46	-21.72	Peak	1.25	135	
699.95	31.15	V	46	-14.85	Peak	1.35	145	The EUT was verified in
								Receive Mode.
								The emissions are not higher
								in Receive Mode.

FCC 15.247 and FCC Class B

Smartfield, Inc.
Base Station
Model: 15010303-A

Date:12/09/2010
Lab: D
Tested By: Kyle Fujimoto

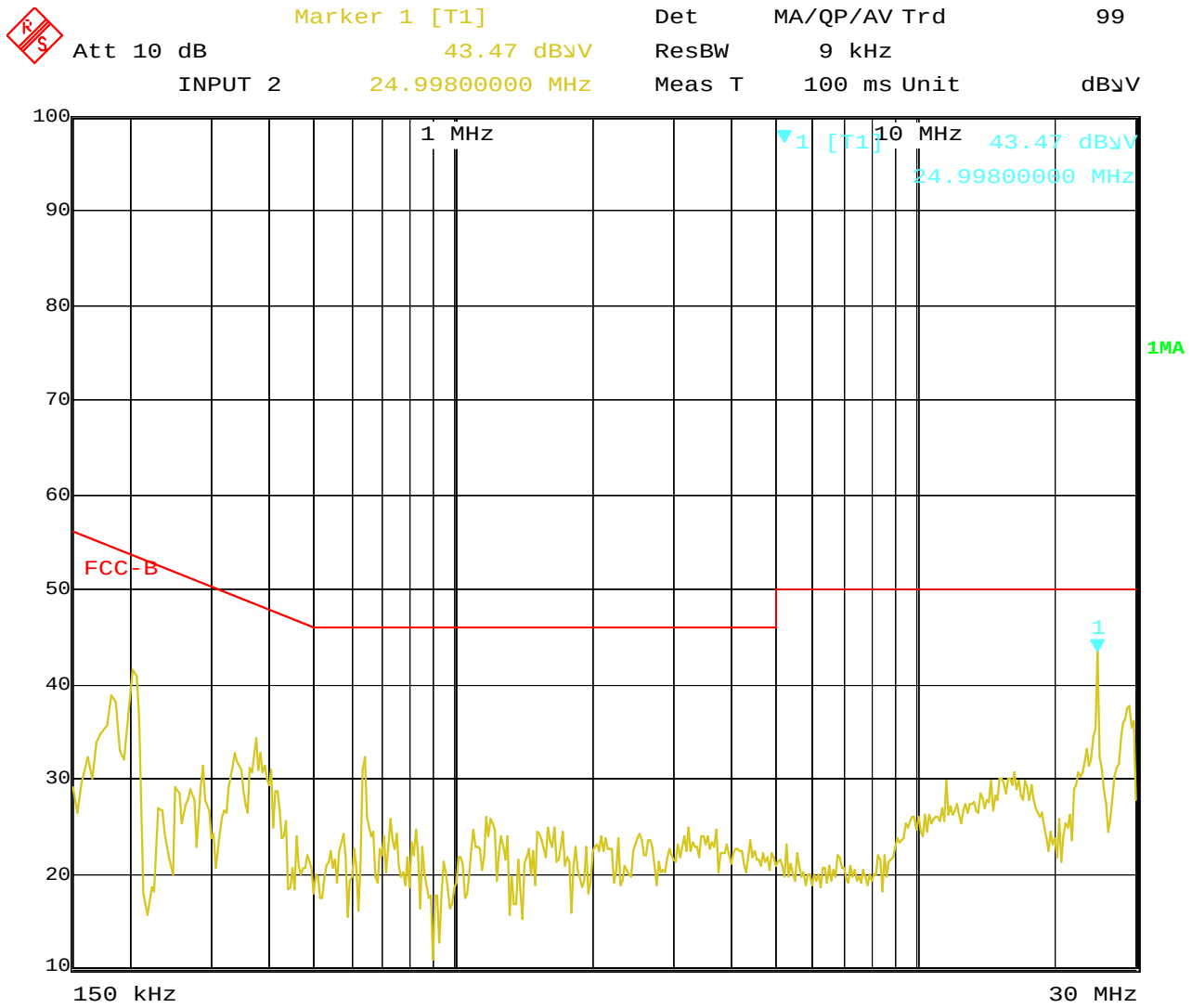
Digital Portion - Transmit Mode (Worst Case) - 10 kHz to 1 GHz
AC Power Mode - Middle Channel (Worst Case) - Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
30.01	21.24	H	40	-18.76	Peak	1	180	
45.13	26.07	H	40	-13.93	Peak	1	180	The EUT was verified in
49.99	21.86	H	40	-18.14	Peak	1.25	135	Receive Mode.
53.92	29.61	H	40	-10.39	Peak	1.35	155	
62.45	32.32	H	40	-7.68	Peak	1.25	135	The emissions are not higher
66.2	10.78	H	40	-29.22	Peak	1.35	155	in Receive Mode.
78.12	20.96	H	40	-19.04	Peak	1.45	165	
108.48	29.83	H	43.5	-13.67	Peak	2.75	180	
120.94	26.38	H	43.5	-17.12	Peak	3	90	
132.24	42.31	H	43.5	-1.19	Peak	1.25	135	
132.24	40.31	H	43.5	-3.19	QP	1.25	135	
138.27	25.59	H	43.5	-17.91	Peak	1.35	155	
149.99	27.97	H	43.5	-15.53	Peak	1.25	165	
150.43	20.81	H	43.5	-22.69	Peak	2.25	180	
163.72	22.26	H	43.5	-21.24	Peak	2.15	135	
185.31	22.07	H	43.5	-21.43	Peak	1.35	155	
199.99	37.18	H	43.5	-6.32	Peak	1.25	165	
279.96	35.86	H	46	-10.14	Peak	1.35	175	
288.64	33.81	H	46	-12.19	Peak	1.25	185	
301.632	26.07	H	46	-19.93	Peak	1.25	185	
348.69	24.95	H	46	-21.05	Peak	1	180	
399.97	36.59	H	46	-9.41	Peak	1	135	
479.96	38.56	H	46	-7.44	Peak	1	135	
481.02	27.96	H	46	-18.04	Peak	1	135	
519.96	33.32	H	46	-12.68	Peak	1.5	180	
539.96	31.88	H	46	-14.12	Peak	1	180	
779.93	32.51	H	46	-13.49	Peak	1	180	
789.22	30.31	H	46	-15.69	Peak	1	180	
799.95	33.65	H	46	-12.35	Peak	1	180	
959.95	30.35	H	46	-15.65	Peak	1	180	

CONDUCTED EMISSIONS

DATA SHEETS

FCC Conducted Emissions
Smartfield, Inc.
Base Station
Model: 15010303-A
FCC Class B – Black Lead
Configuration: Transmit Mode
Tested By: Kyle Fujimoto



Date: 16.DEC.2010 08:18:42

FCC Conducted Emissions
Smartfield, Inc.
Base Station
Model: 15010303-A
FCC Class B – Black Lead
Configuration: Transmit Mode
Tested By: Kyle Fujimoto

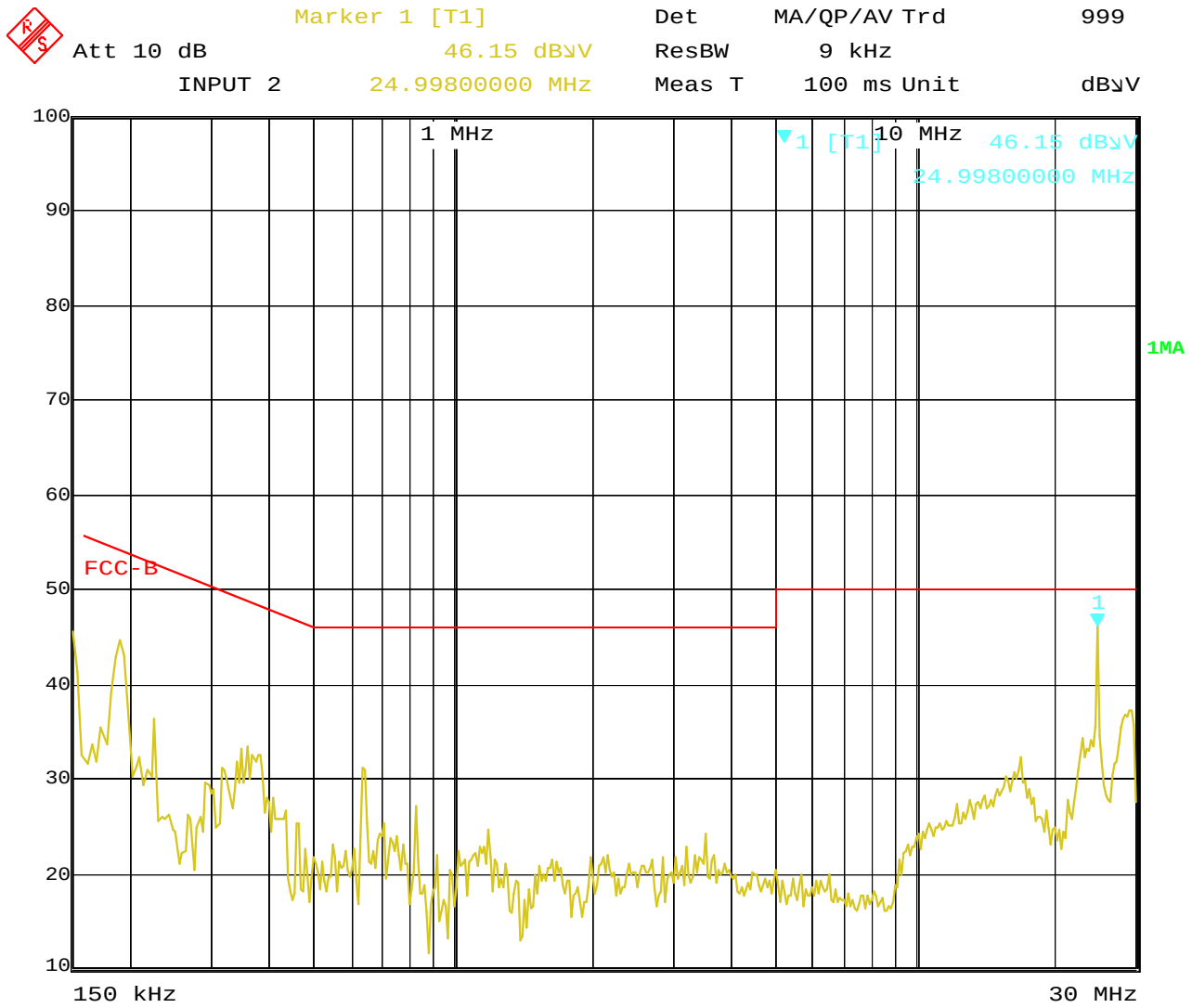
EDIT PEAK LIST (Prescan Results)

Trace1: FCC-B Trace2: ---
Trace3: --- Trace4: ---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	24.9980 MHz	43.47	-6.52
1	Max Peak	202.0000 kHz	41.32	-12.19
1	Max Peak	29.0620 MHz	37.61	-12.38
1	Max Peak	28.8980 MHz	37.22	-12.77
1	Max Peak	29.2140 MHz	36.34	-13.65
1	Max Peak	642.0000 kHz	32.24	-13.75
1	Max Peak	28.7460 MHz	36.11	-13.88
1	Max Peak	28.7900 MHz	35.97	-14.02
1	Max Peak	29.8980 MHz	35.87	-14.12
1	Max Peak	28.2980 MHz	35.85	-14.14
1	Max Peak	370.0000 kHz	34.08	-14.41
1	Max Peak	28.5700 MHz	35.56	-14.43
1	Max Peak	28.1820 MHz	35.43	-14.56
1	Max Peak	29.1460 MHz	35.39	-14.60
1	Max Peak	29.5540 MHz	35.22	-14.78
1	Max Peak	24.6300 MHz	35.16	-14.83
1	Max Peak	29.3060 MHz	34.68	-15.31
1	Max Peak	28.3180 MHz	34.59	-15.40
1	Max Peak	28.1540 MHz	34.46	-15.53
1	Max Peak	28.6340 MHz	34.44	-15.55

Date: 16.DEC.2010 08:19:16

FCC Conducted Emissions
Smartfield, Inc.
Base Station
Model: 15010303-A
FCC Class B – White Lead
Configuration: Transmit Mode
Tested By: Kyle Fujimoto



Date: 16.DEC.2010 08:22:04

FCC Conducted Emissions
Smartfield, Inc.
Base Station
Model: 15010303-A
FCC Class B – White Lead
Configuration: Transmit Mode
Tested By: Kyle Fujimoto

EDIT PEAK LIST (Prescan Results)

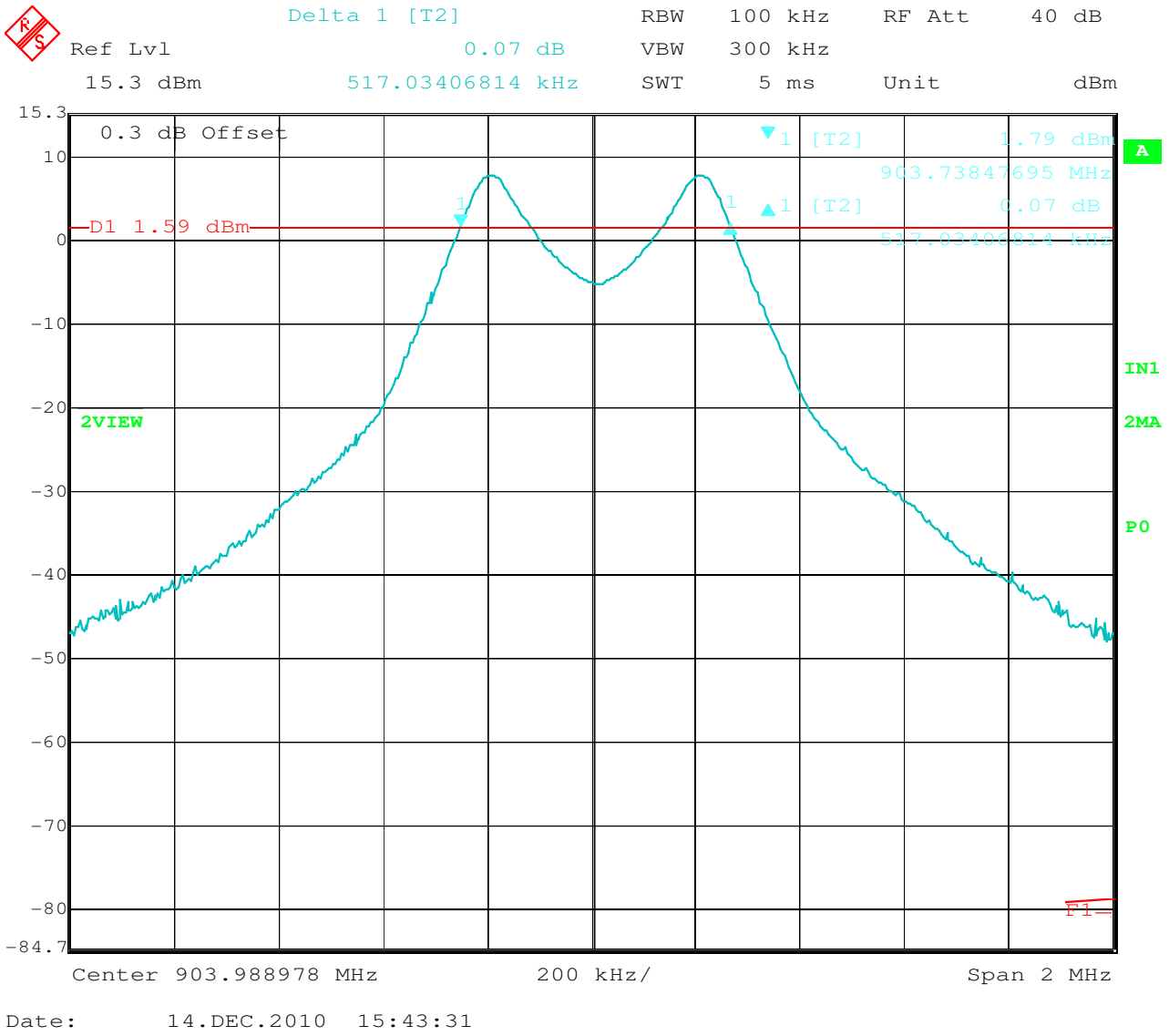
Trace1: FCC-B Trace2: ---
Trace3: --- Trace4: ---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	24.9980 MHz	46.14	-3.85
1	Max Peak	190.0000 kHz	44.49	-9.54
1	Max Peak	150.0000 kHz	45.40	-10.59
1	Max Peak	29.3740 MHz	37.21	-12.78
1	Max Peak	29.1020 MHz	37.21	-12.78
1	Max Peak	28.6260 MHz	36.71	-13.28
1	Max Peak	29.3260 MHz	36.33	-13.66
1	Max Peak	29.0060 MHz	36.33	-13.66
1	Max Peak	28.6540 MHz	36.33	-13.66
1	Max Peak	29.5020 MHz	36.20	-13.80
1	Max Peak	28.4540 MHz	36.19	-13.80
1	Max Peak	28.9500 MHz	36.05	-13.94
1	Max Peak	28.7860 MHz	36.05	-13.94
1	Max Peak	28.9020 MHz	35.78	-14.21
1	Max Peak	29.5980 MHz	35.64	-14.35
1	Max Peak	28.8660 MHz	35.64	-14.36
1	Max Peak	28.7740 MHz	35.64	-14.36
1	Max Peak	28.5260 MHz	35.63	-14.36
1	Max Peak	29.9460 MHz	35.50	-14.49
1	Max Peak	28.8380 MHz	35.50	-14.49

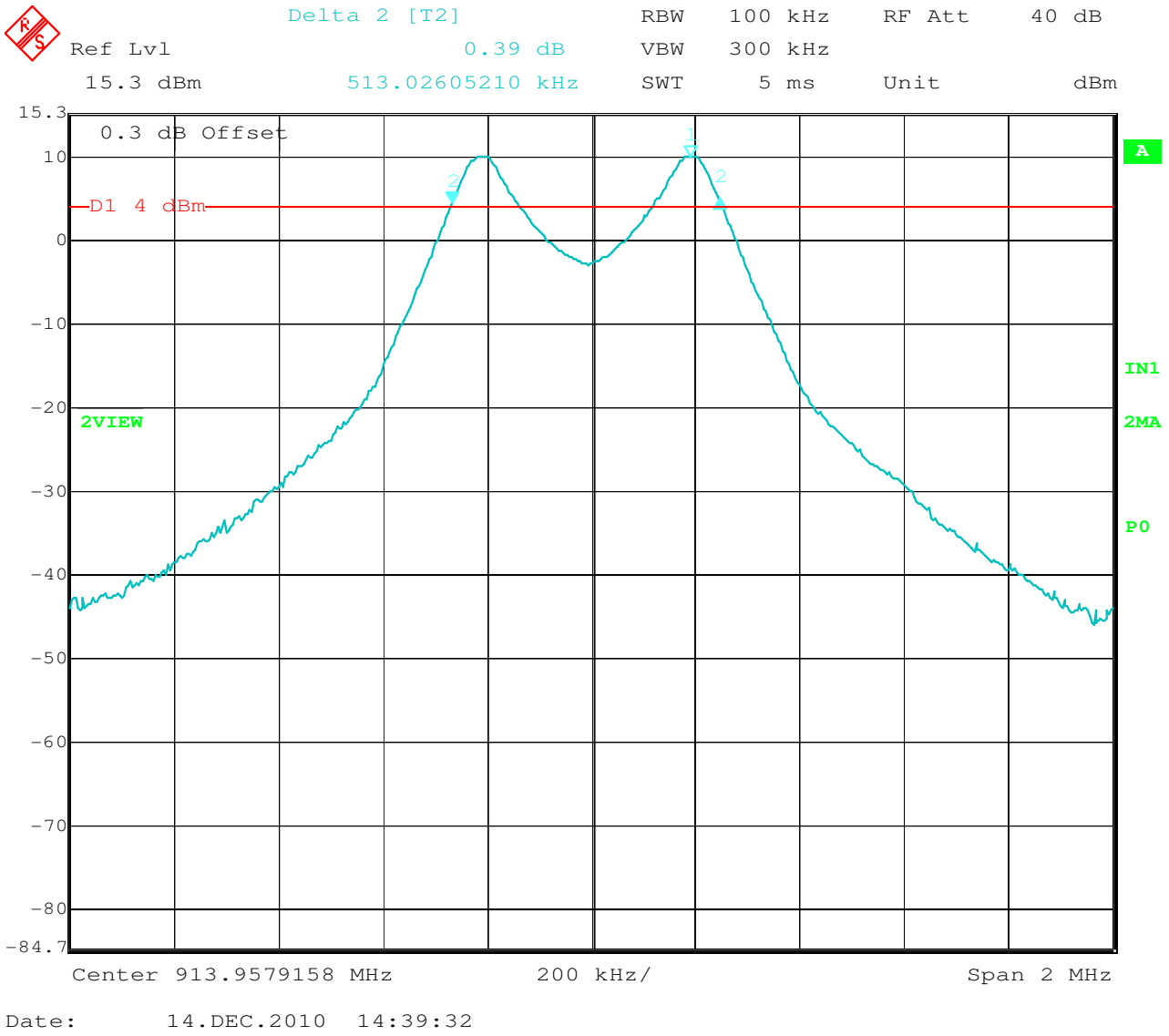
Date: 16.DEC.2010 08:21:44

-6 dB BANDWIDTH

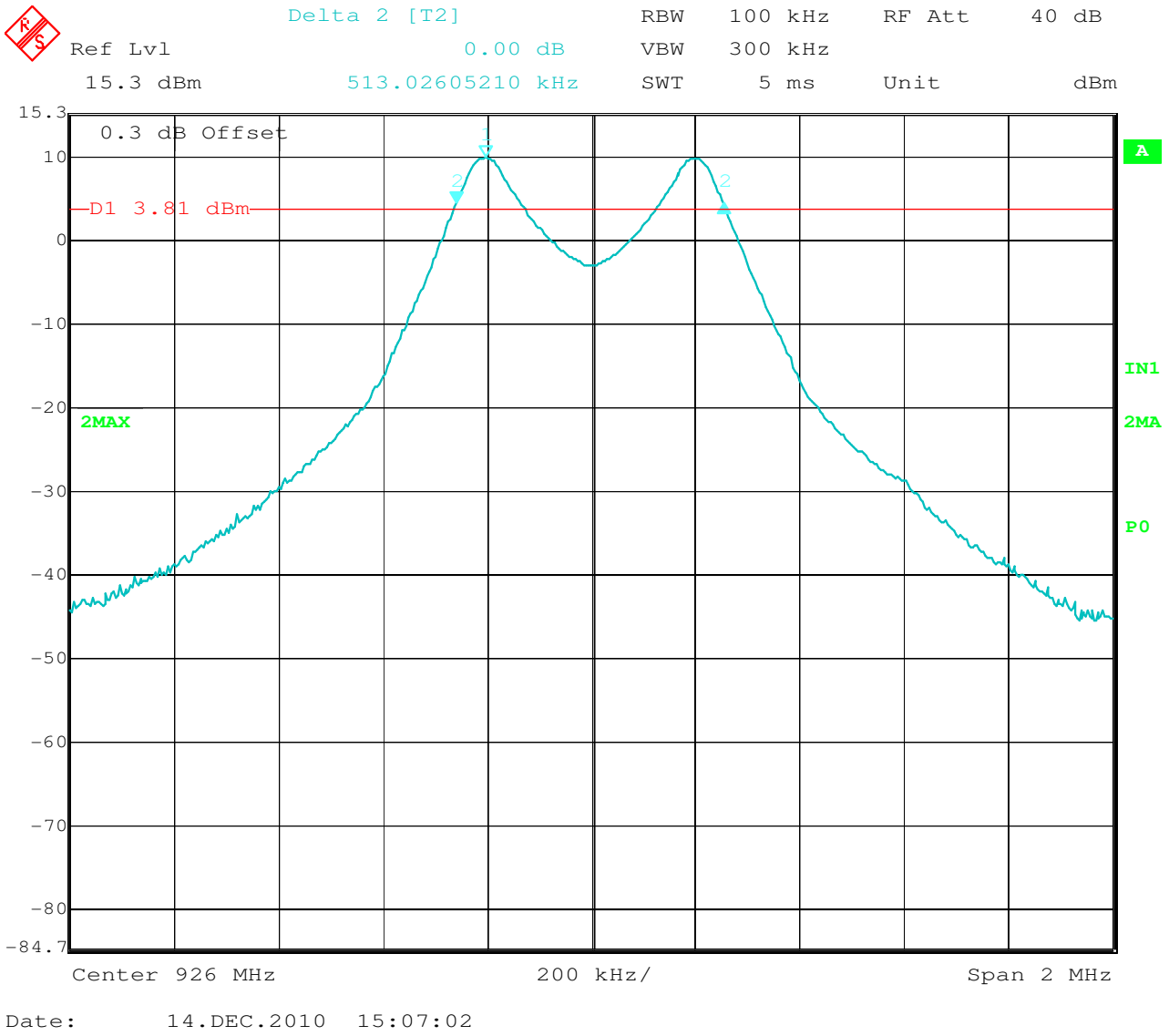
DATA SHEETS



Bandwidth 6 dB – Low Channel



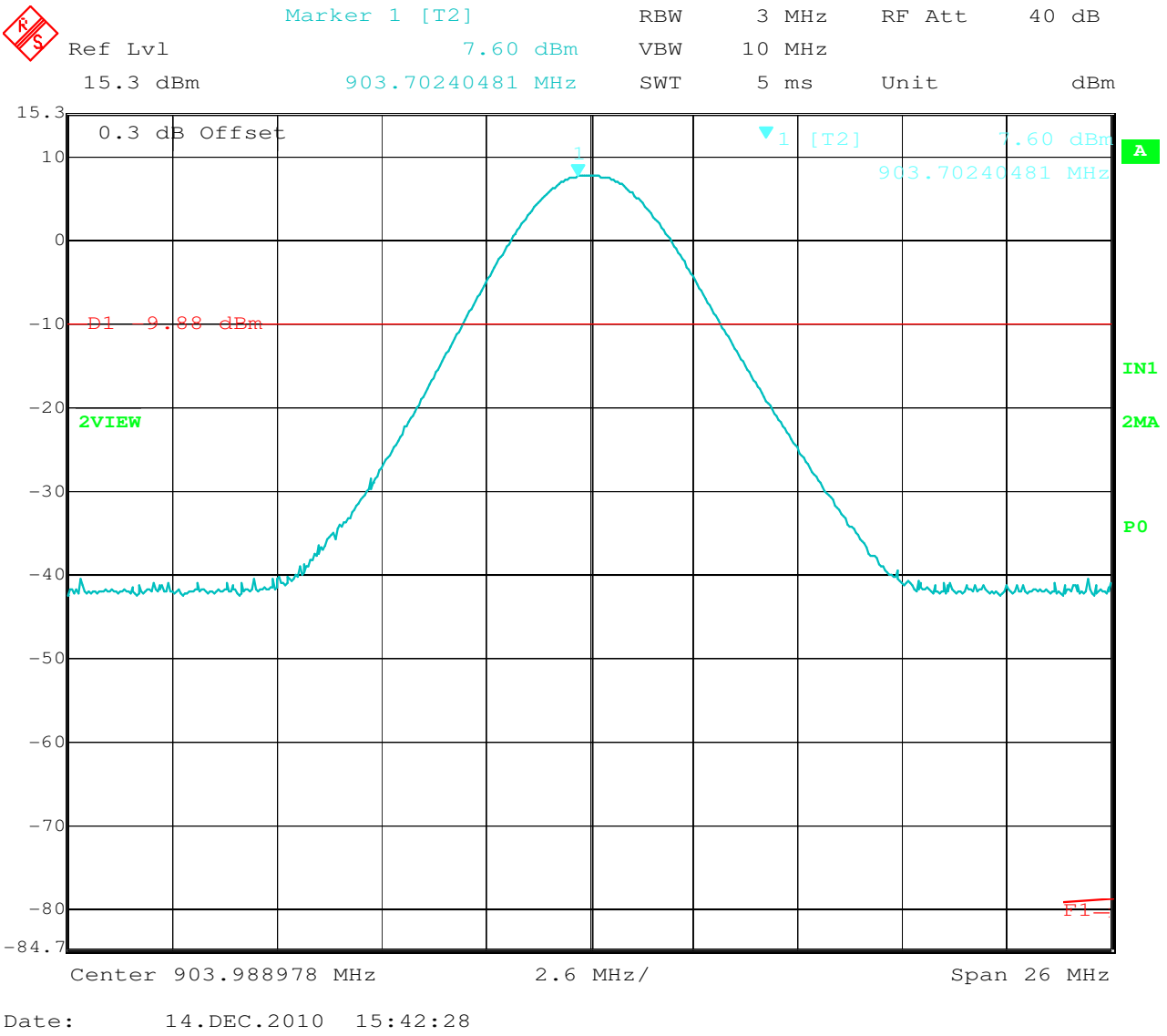
Bandwidth 6 dB – Middle Channel



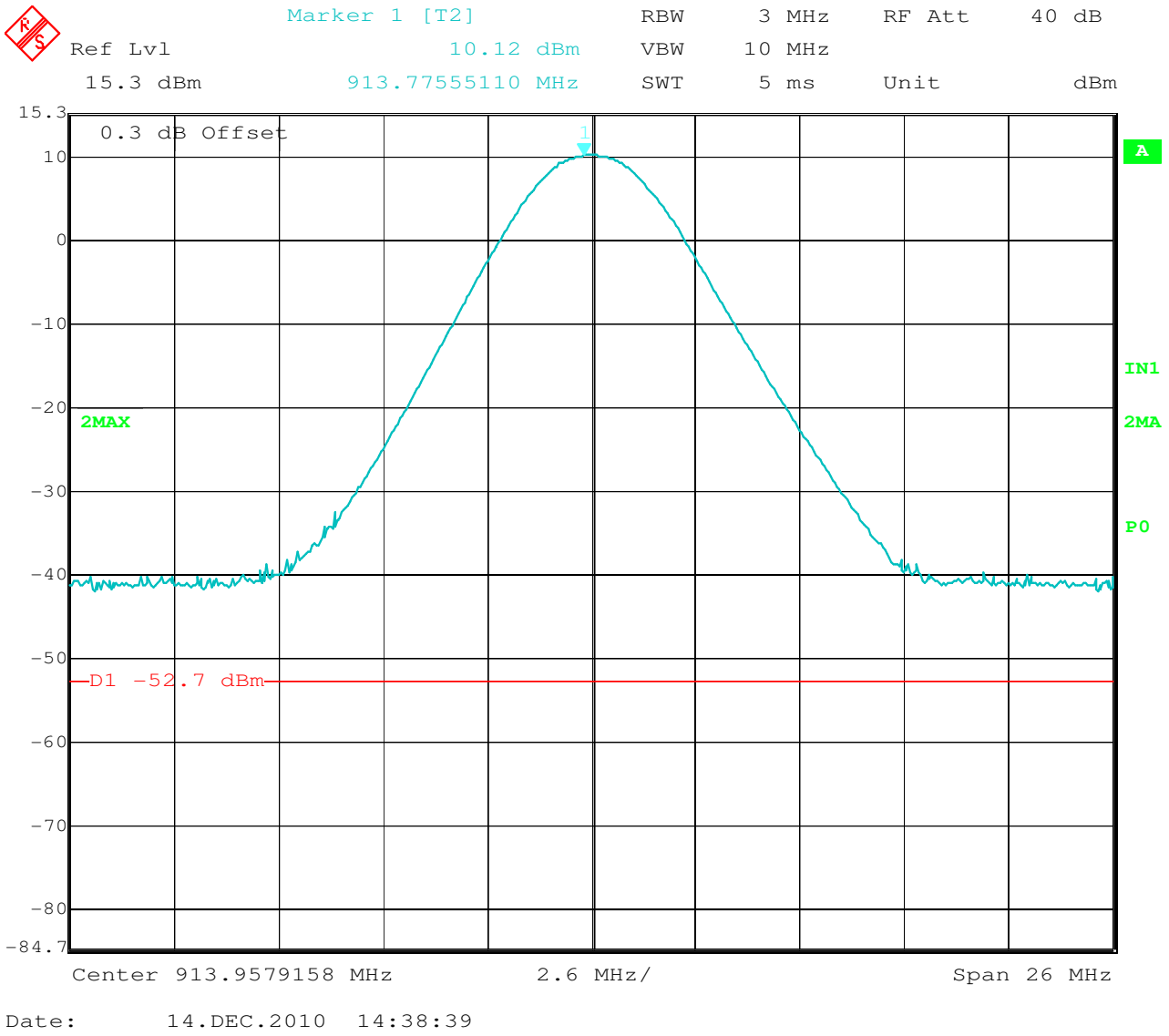
Bandwidth 6 dB – High Channel

PEAK POWER OUTPUT

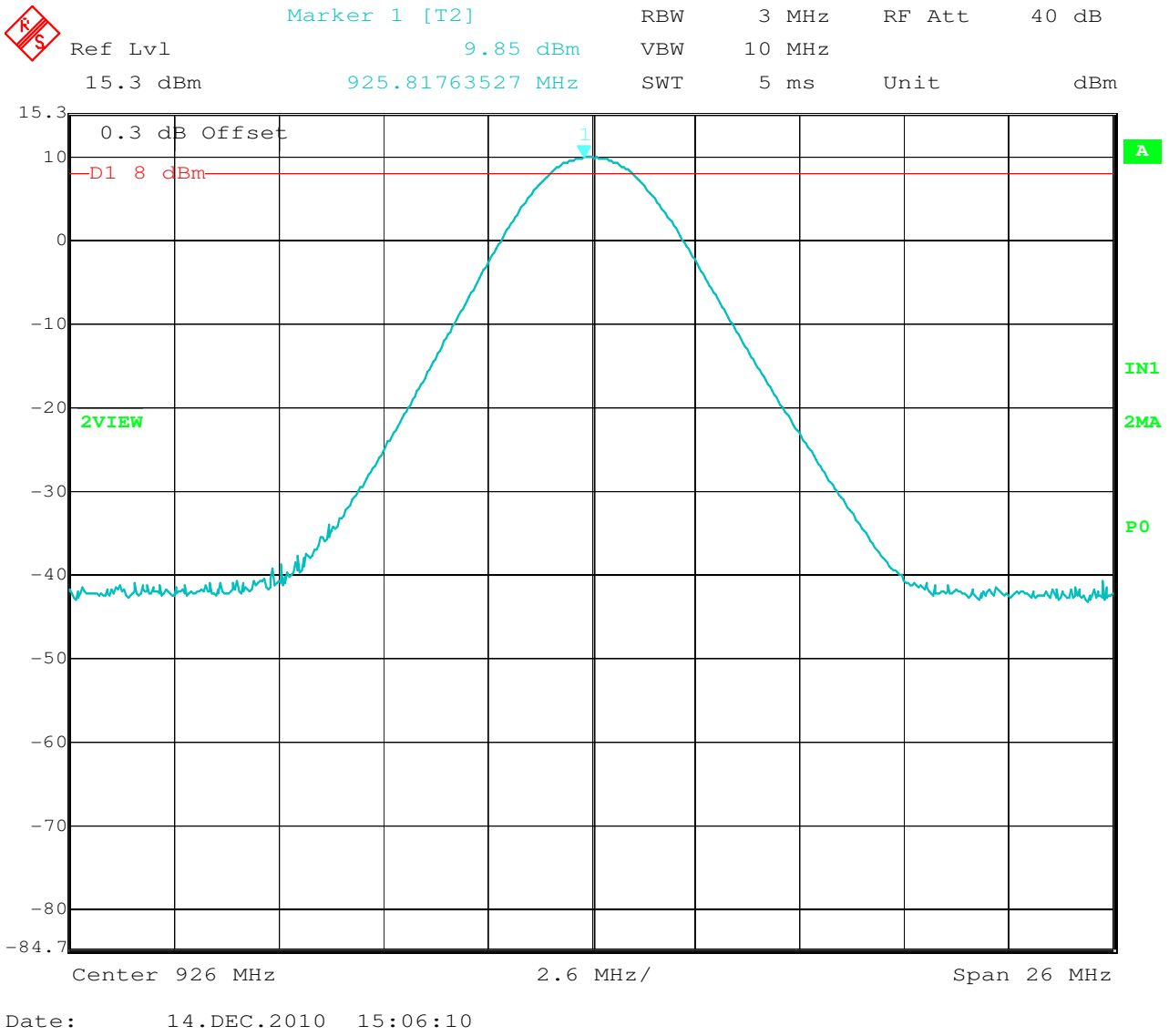
DATA SHEETS



Peak Power Output – Low Channel



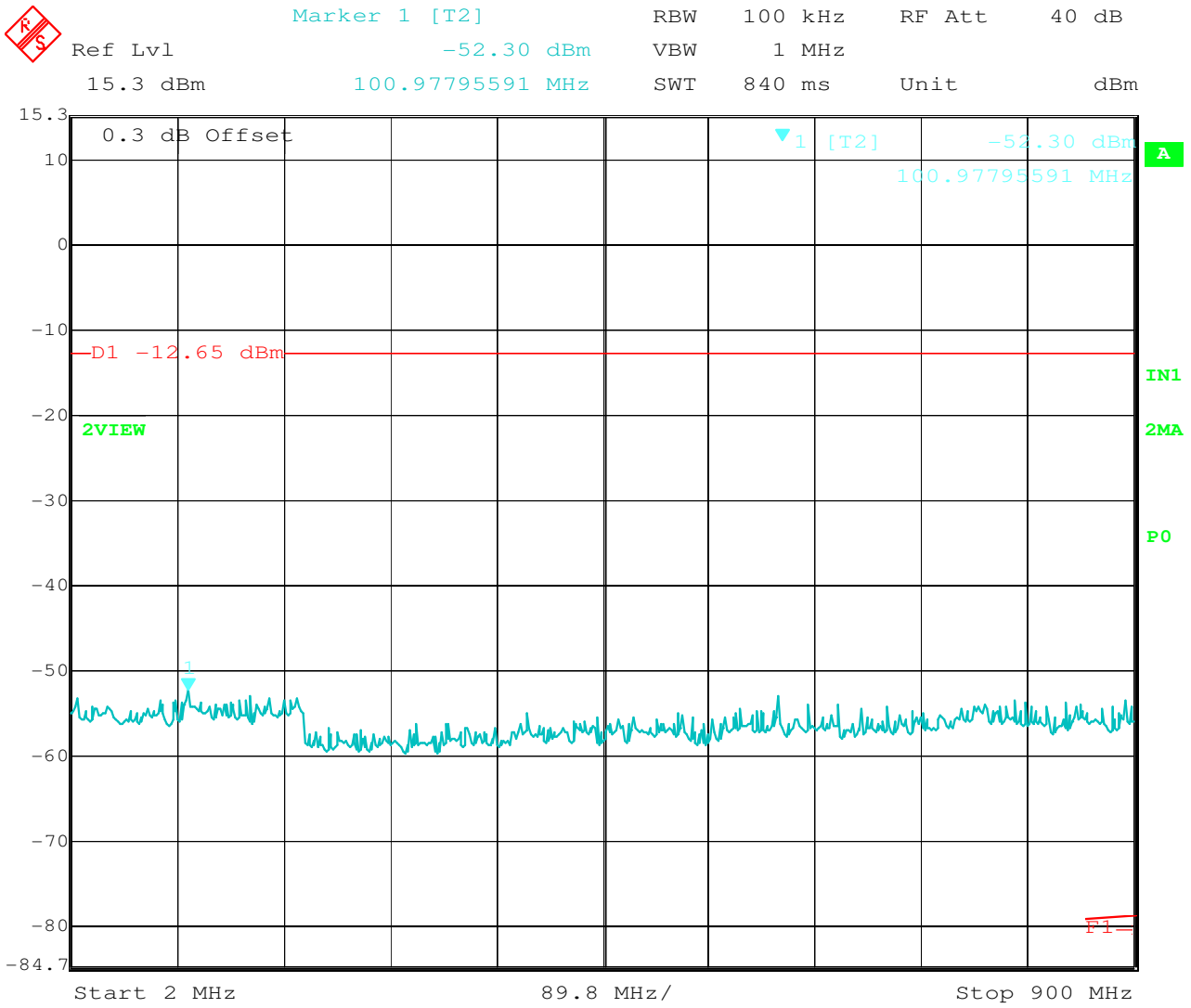
Peak Power Output – Middle Channel



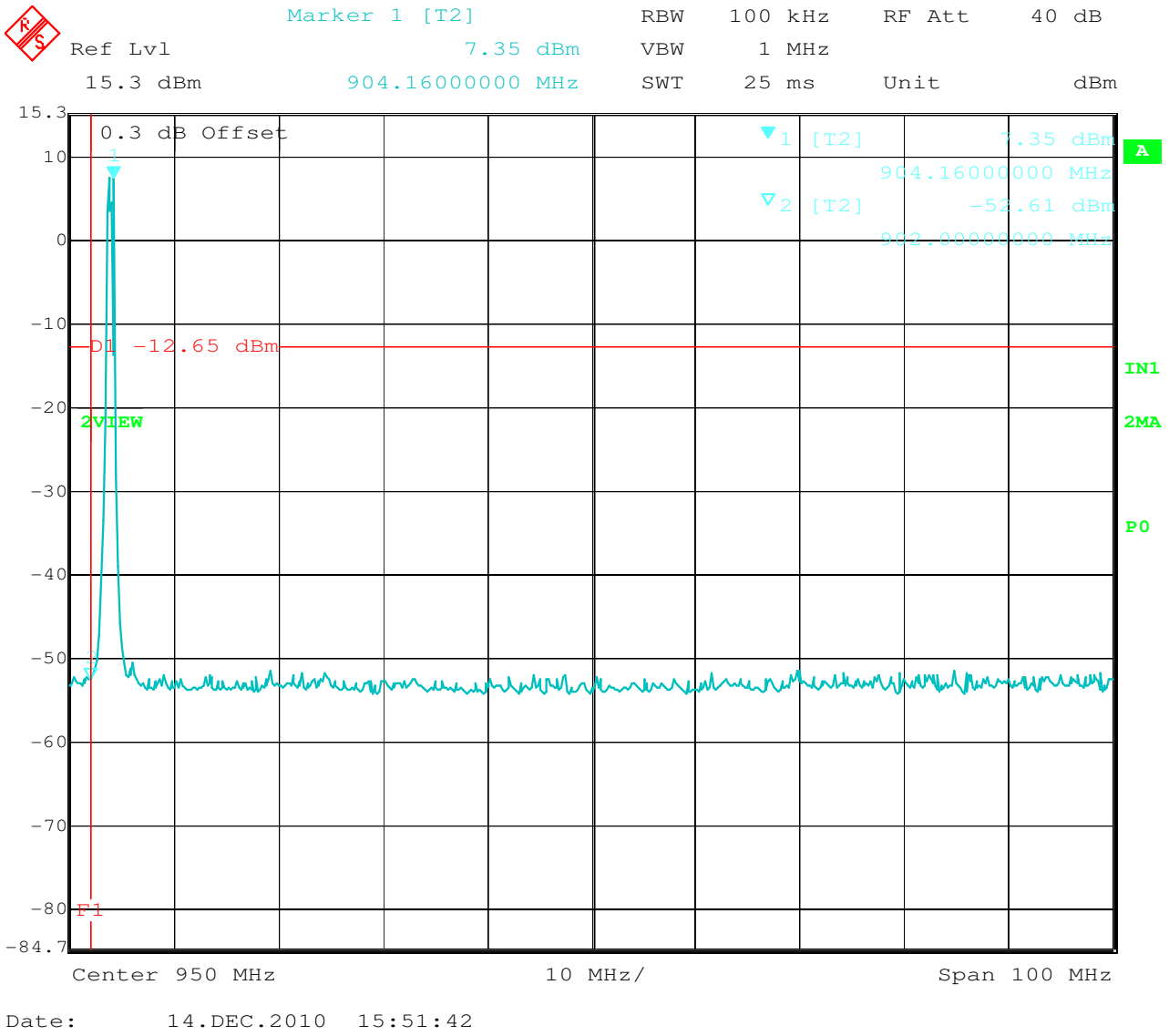
Peak Power Output – High Channel

RF ANTENNA CONDUCTED

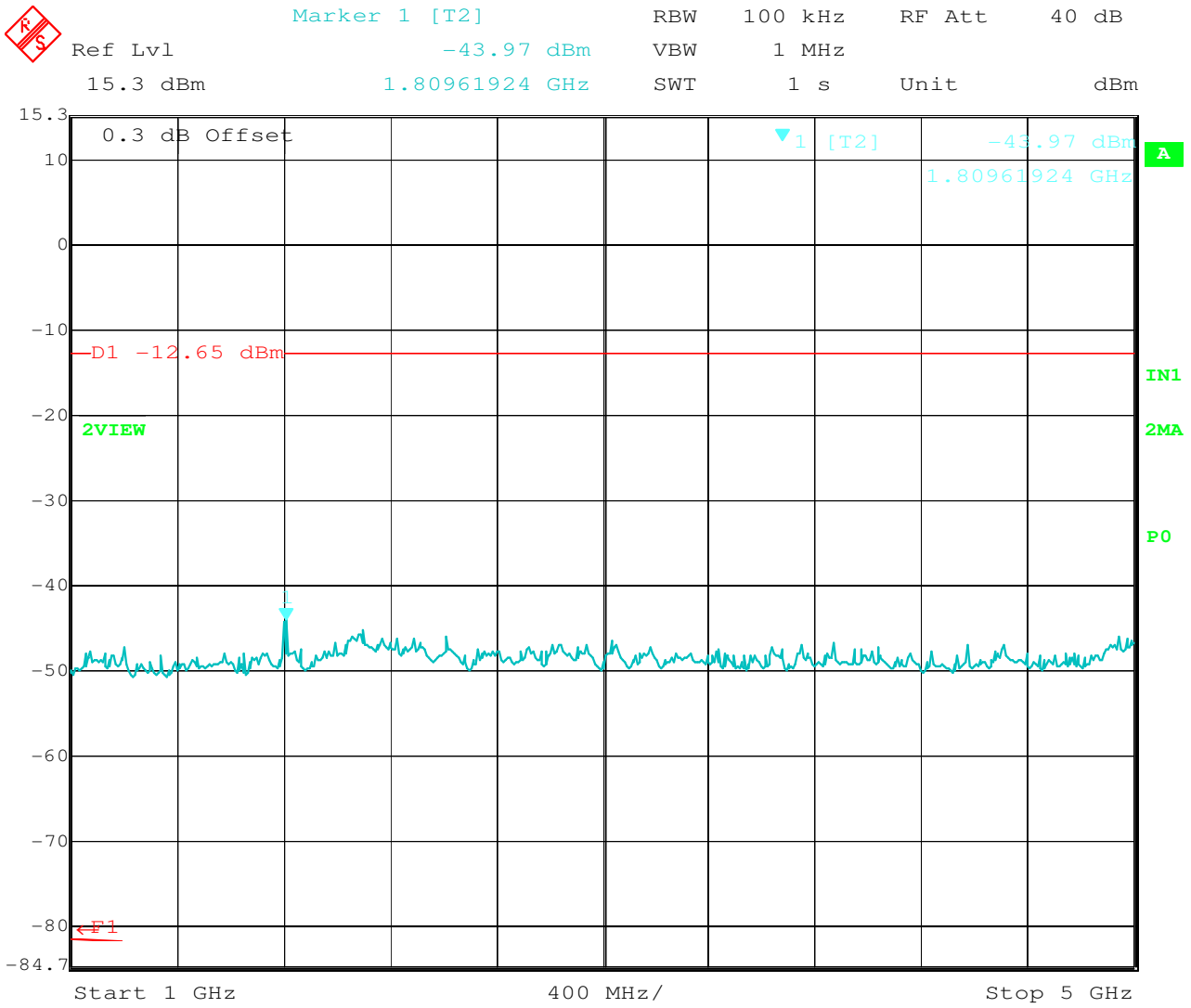
DATA SHEETS



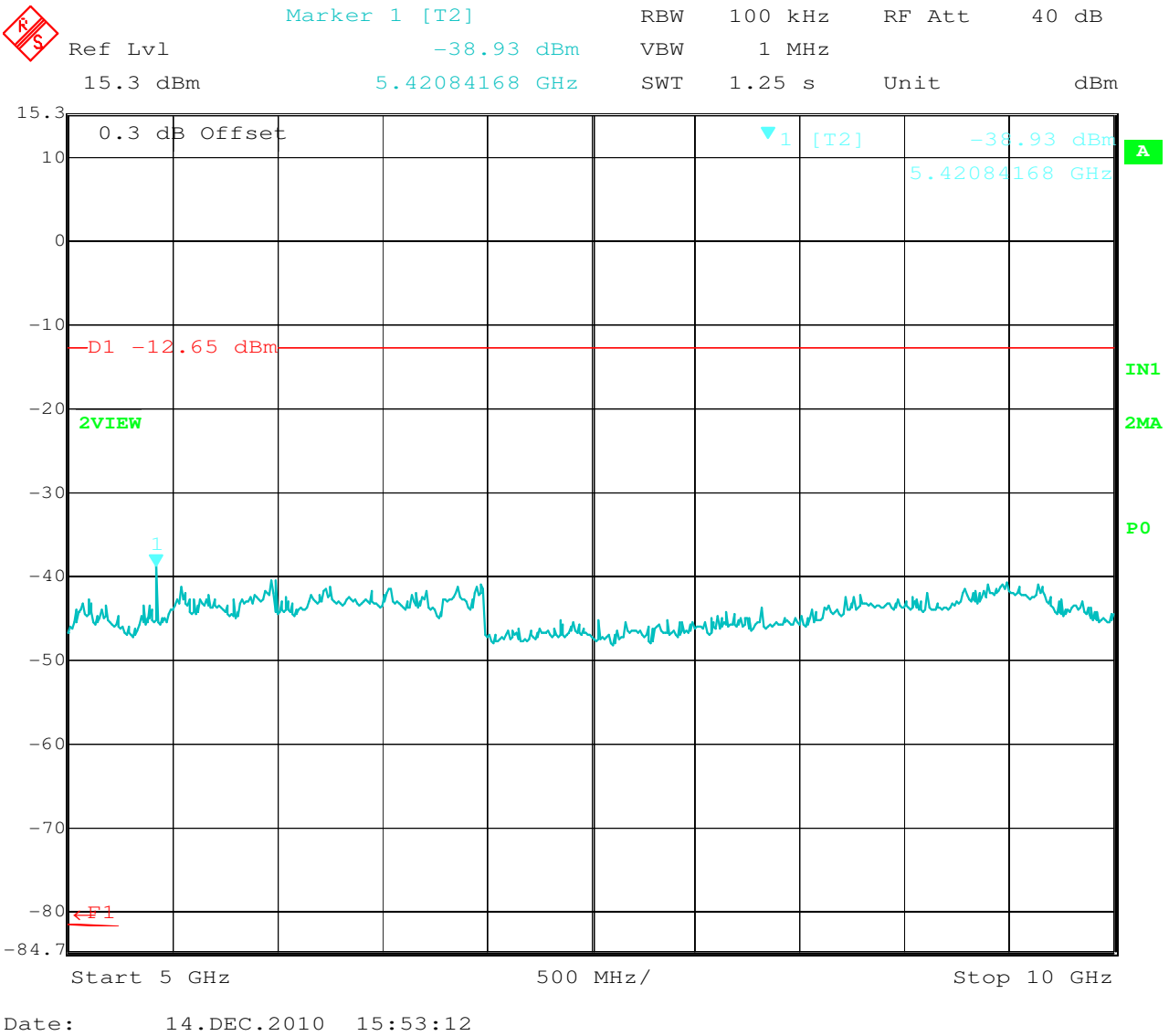
RF Antenna Conducted Test – Low Channel – 2 MHz to 900 MHz



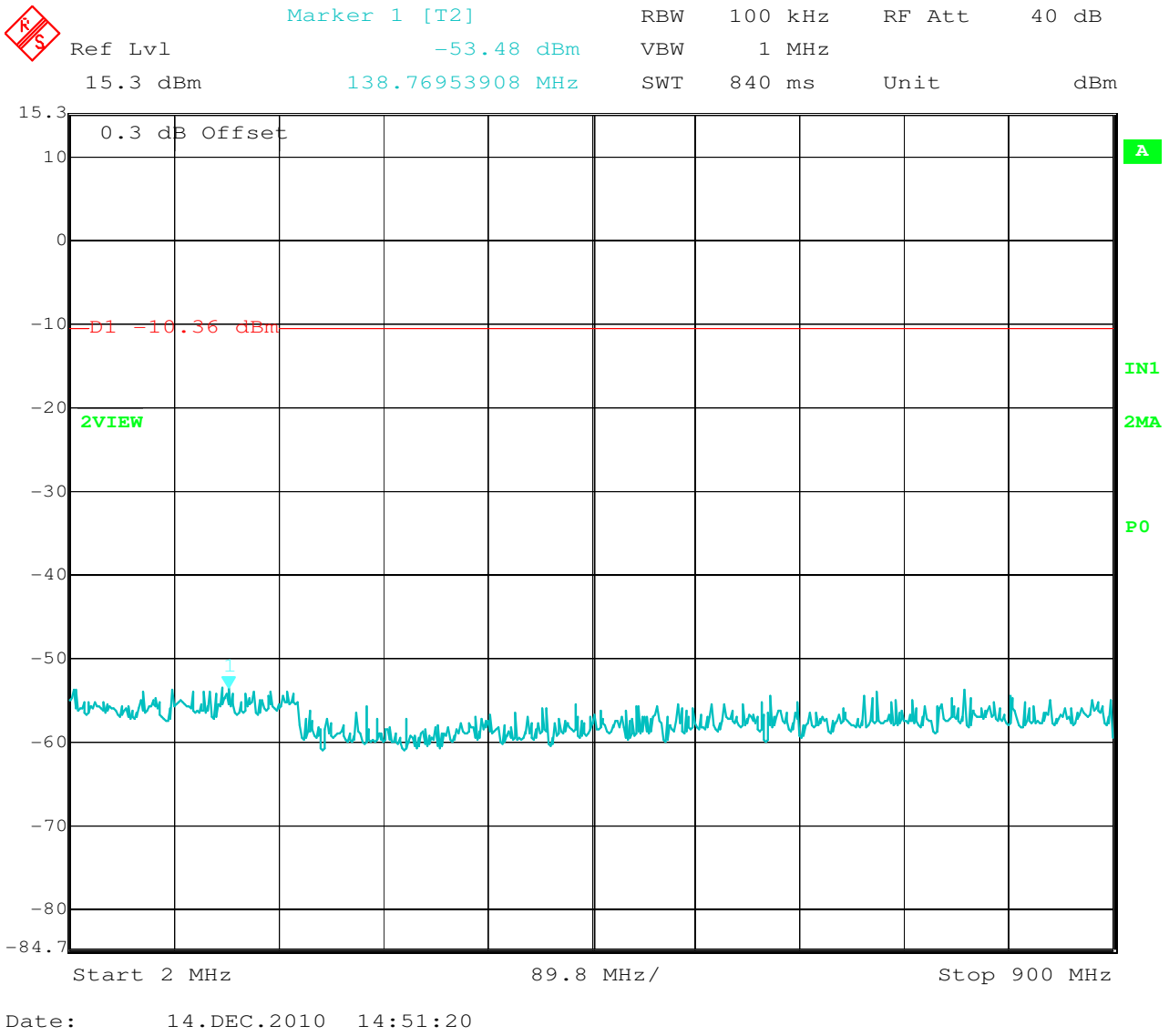
RF Antenna Conducted Test – Low Channel – 900 MHz to 1 GHz



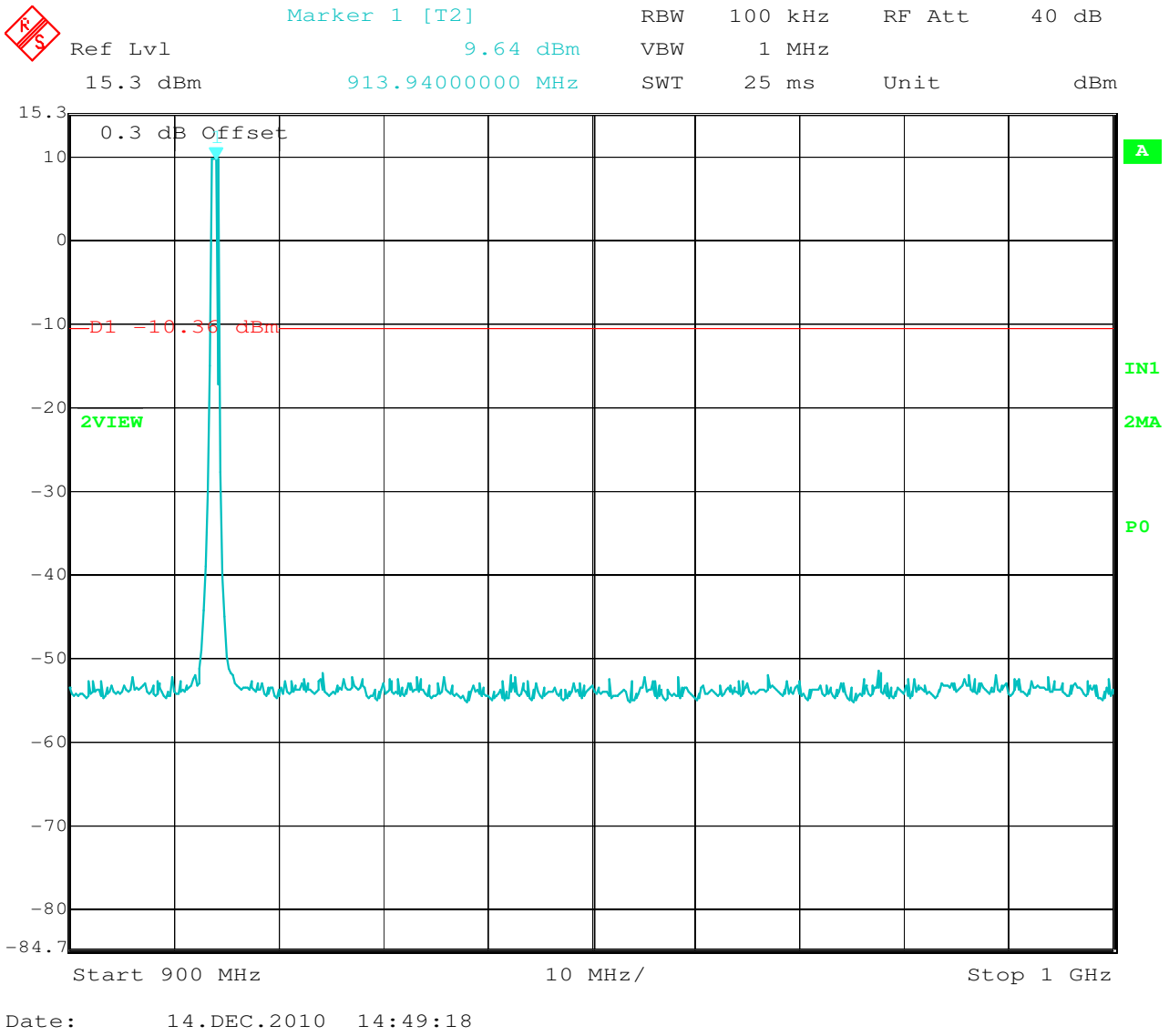
RF Antenna Conducted Test – Low Channel – 1 GHz to 5 GHz



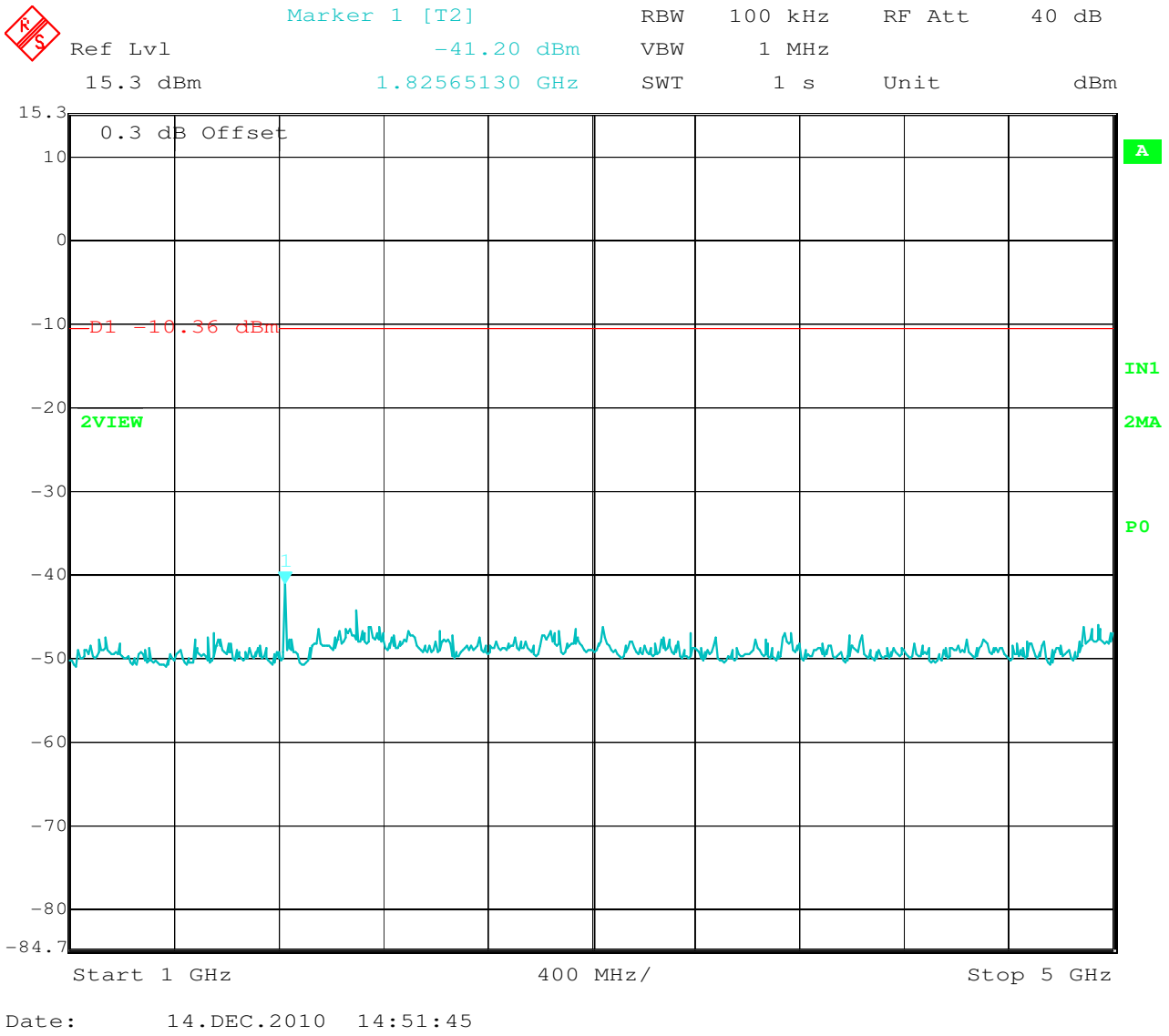
RF Antenna Conducted Test – Low Channel – 5 GHz to 10 GHz



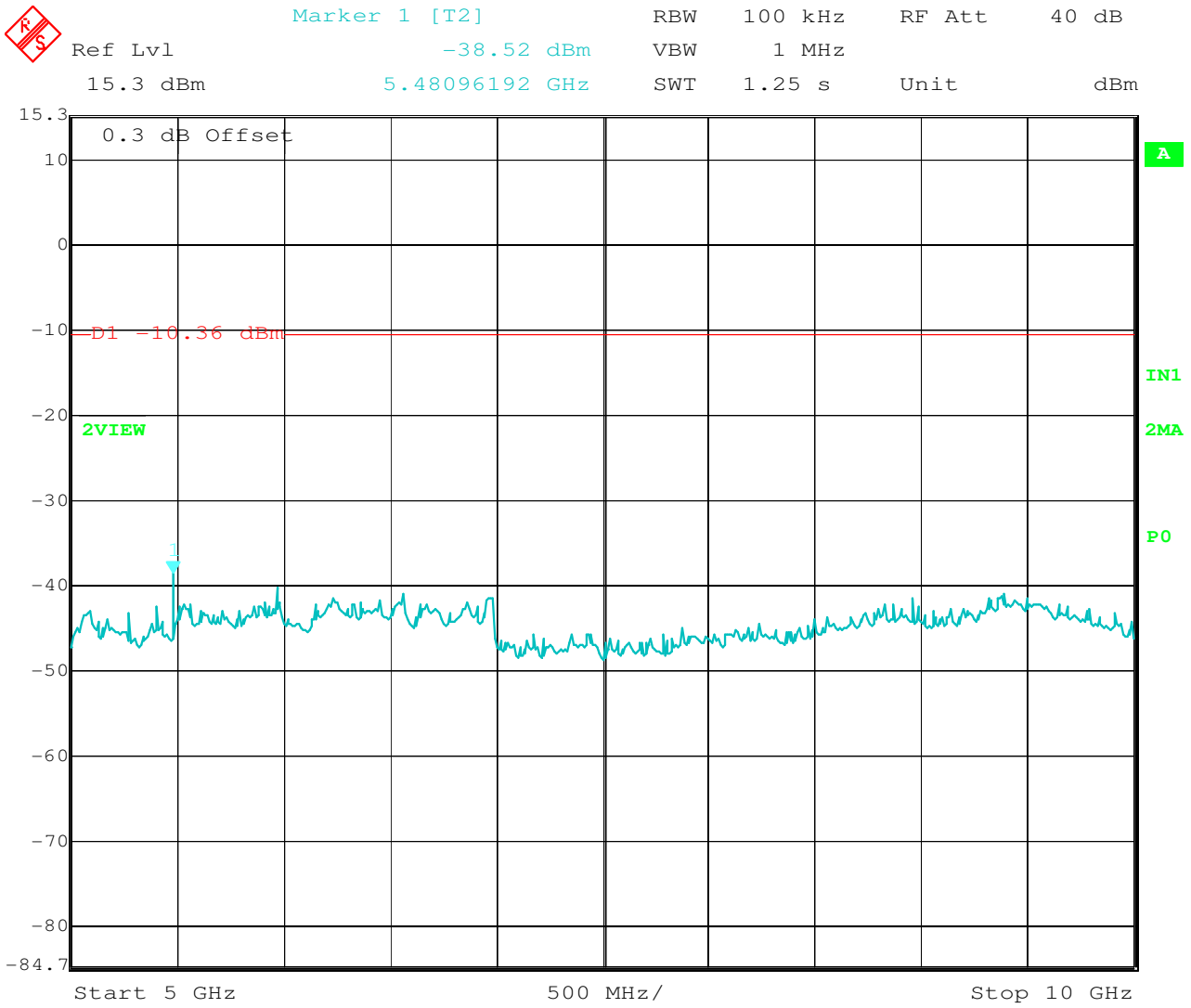
RF Antenna Conducted Test – Middle Channel – 2 MHz to 900 MHz



RF Antenna Conducted Test – Middle Channel – 900 MHz to 1 GHz

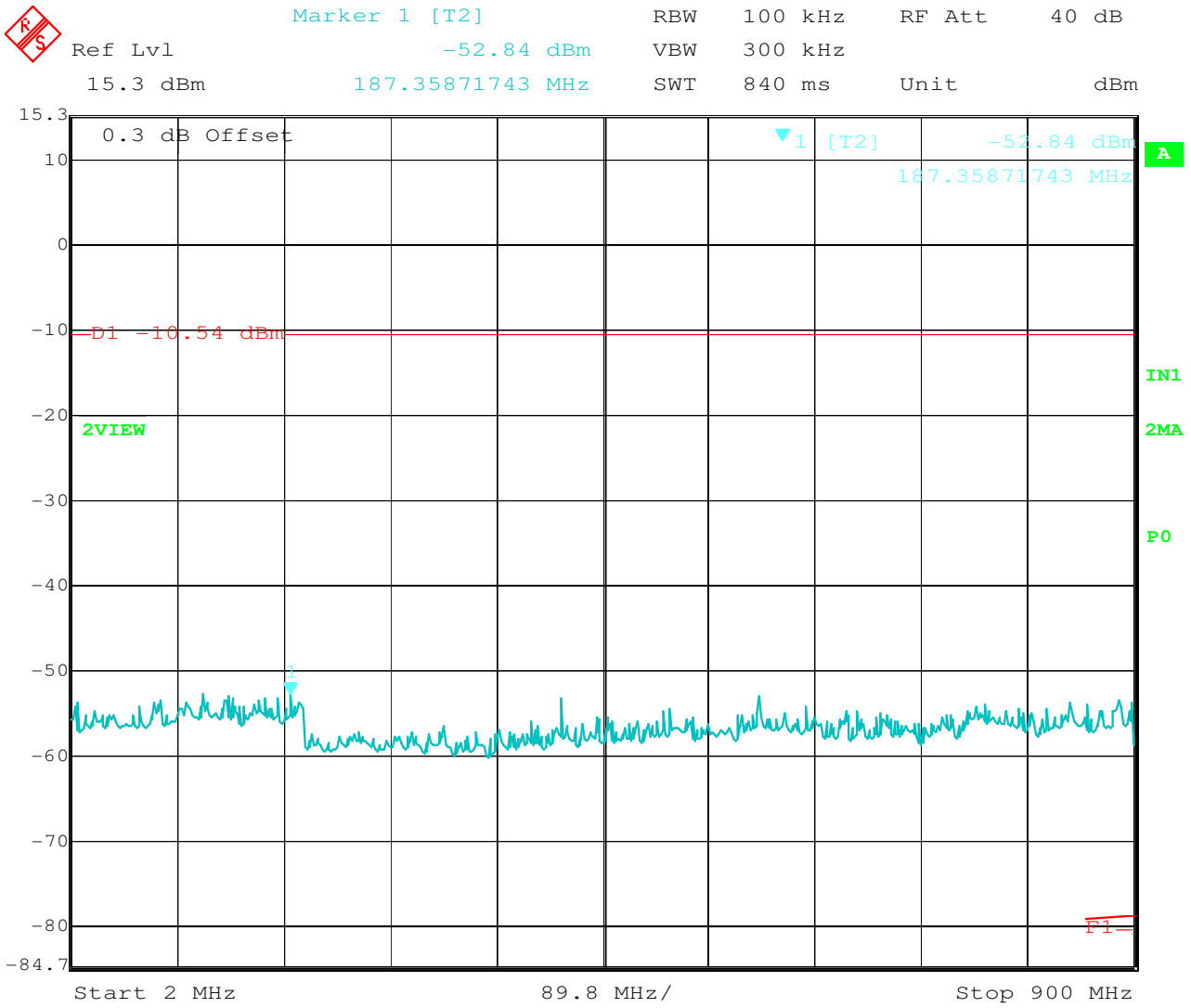


RF Antenna Conducted Test – Middle Channel – 1 GHz to 5 GHz



Date: 14.DEC.2010 14:52:08

RF Antenna Conducted Test – Middle Channel – 5 GHz to 10 GHz



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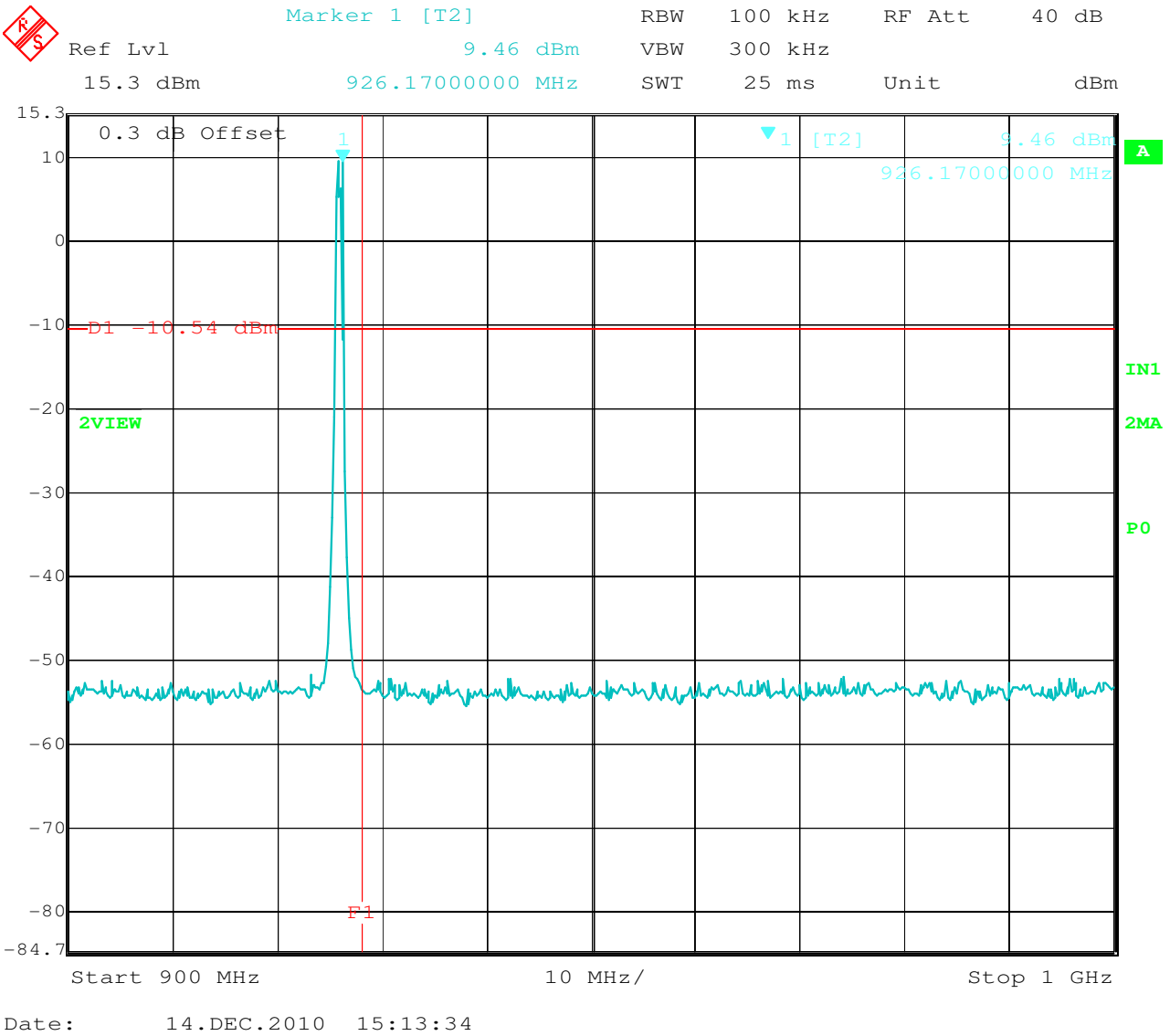
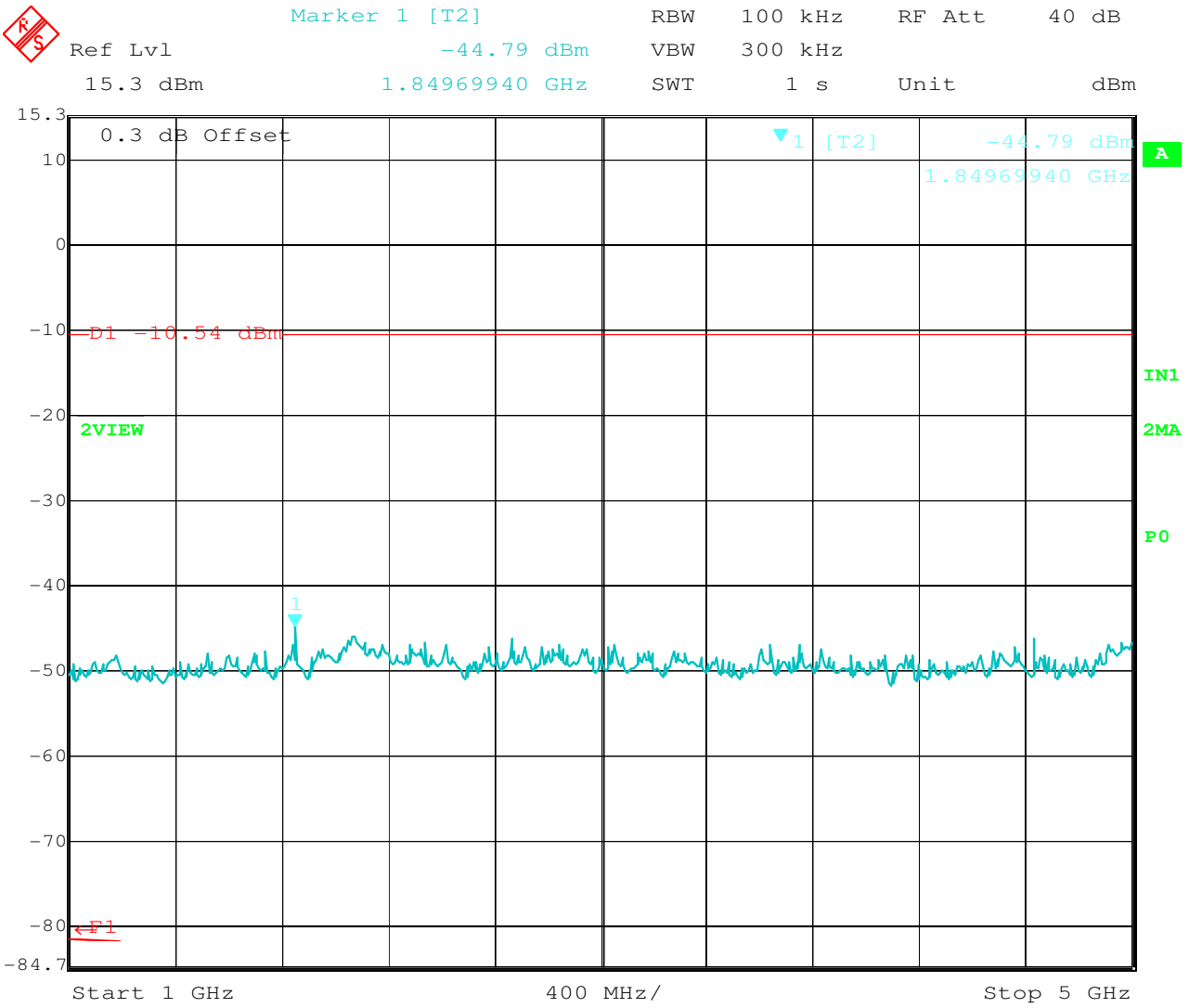
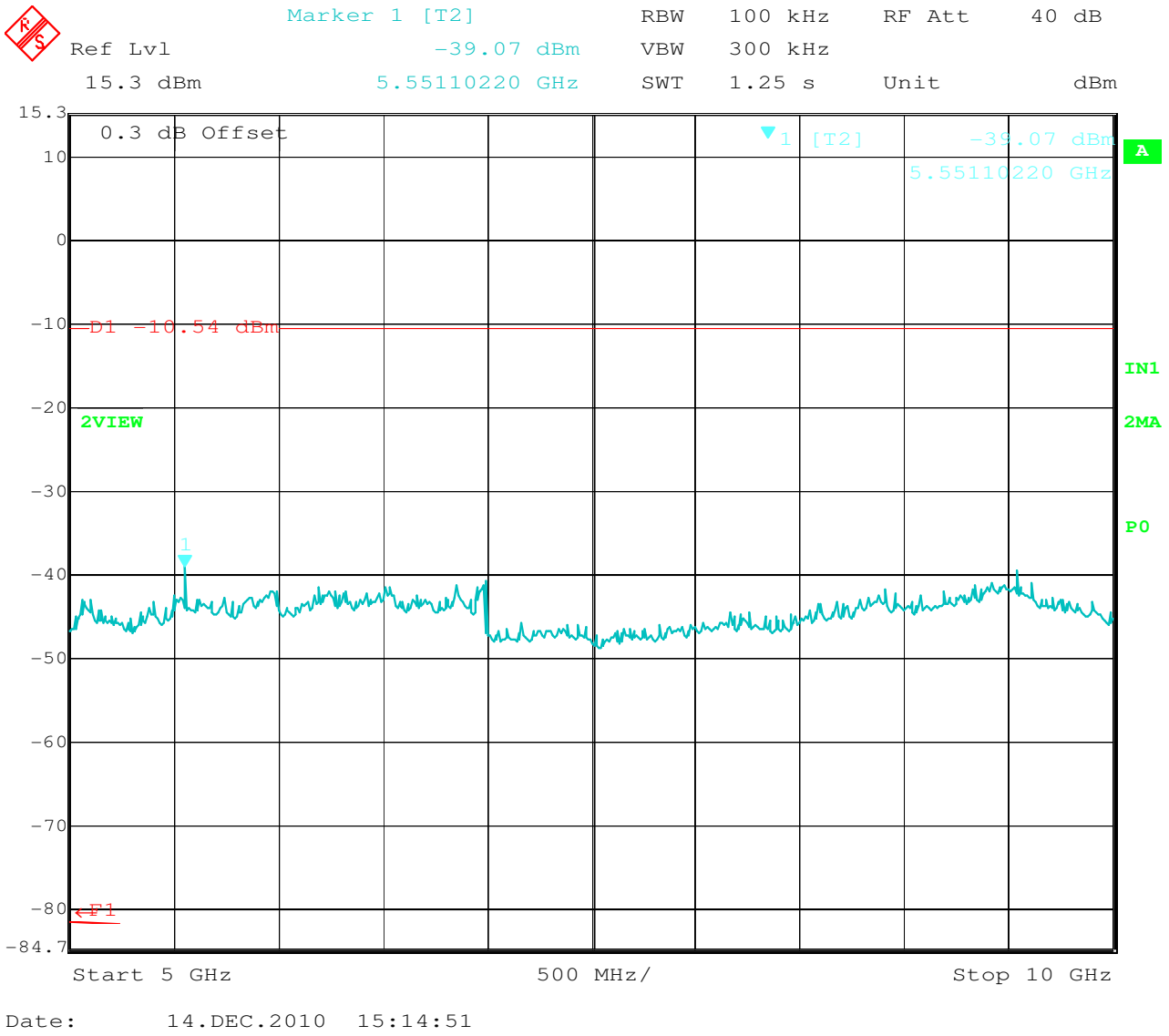
RF Antenna Conducted Test – High Channel – 2 MHz to 900 MHz



RF Antenna Conducted Test – High Channel – 900 MHz to 1 GHz



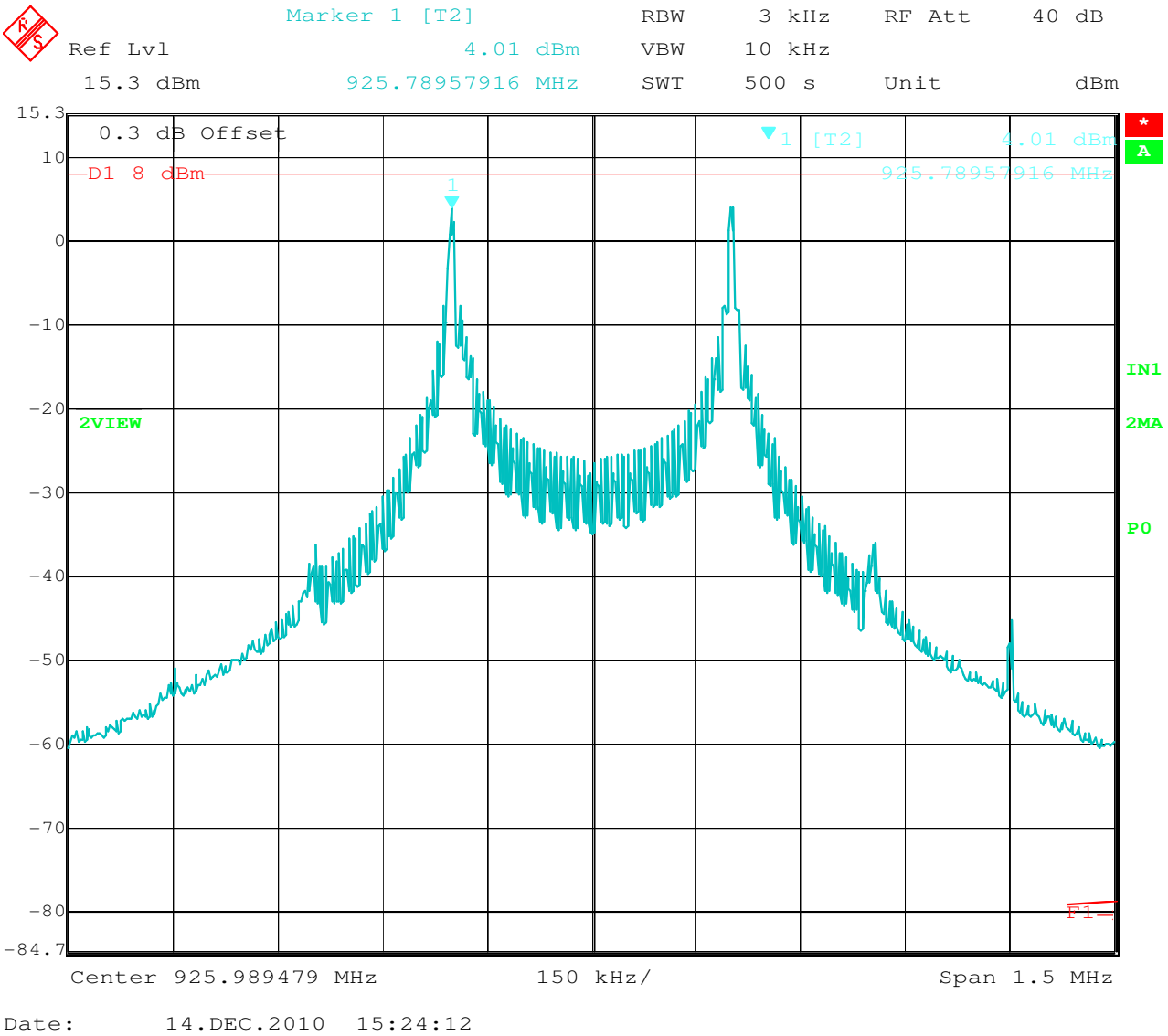
RF Antenna Conducted Test – High Channel – 1 GHz to 5 GHz



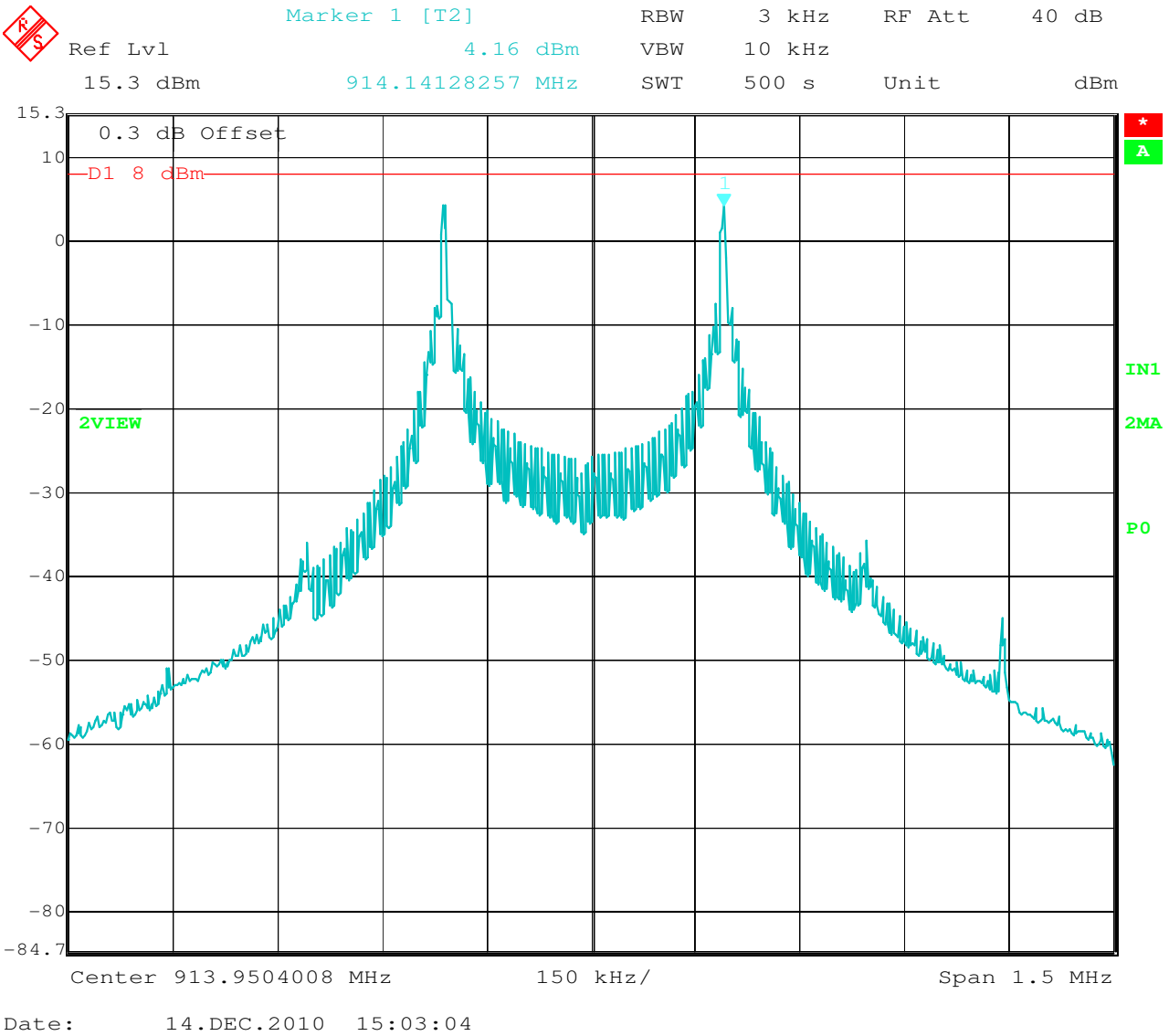
RF Antenna Conducted Test – High Channel – 5 GHz to 10 GHz

PEAK POWER SPECTRAL DENSITY

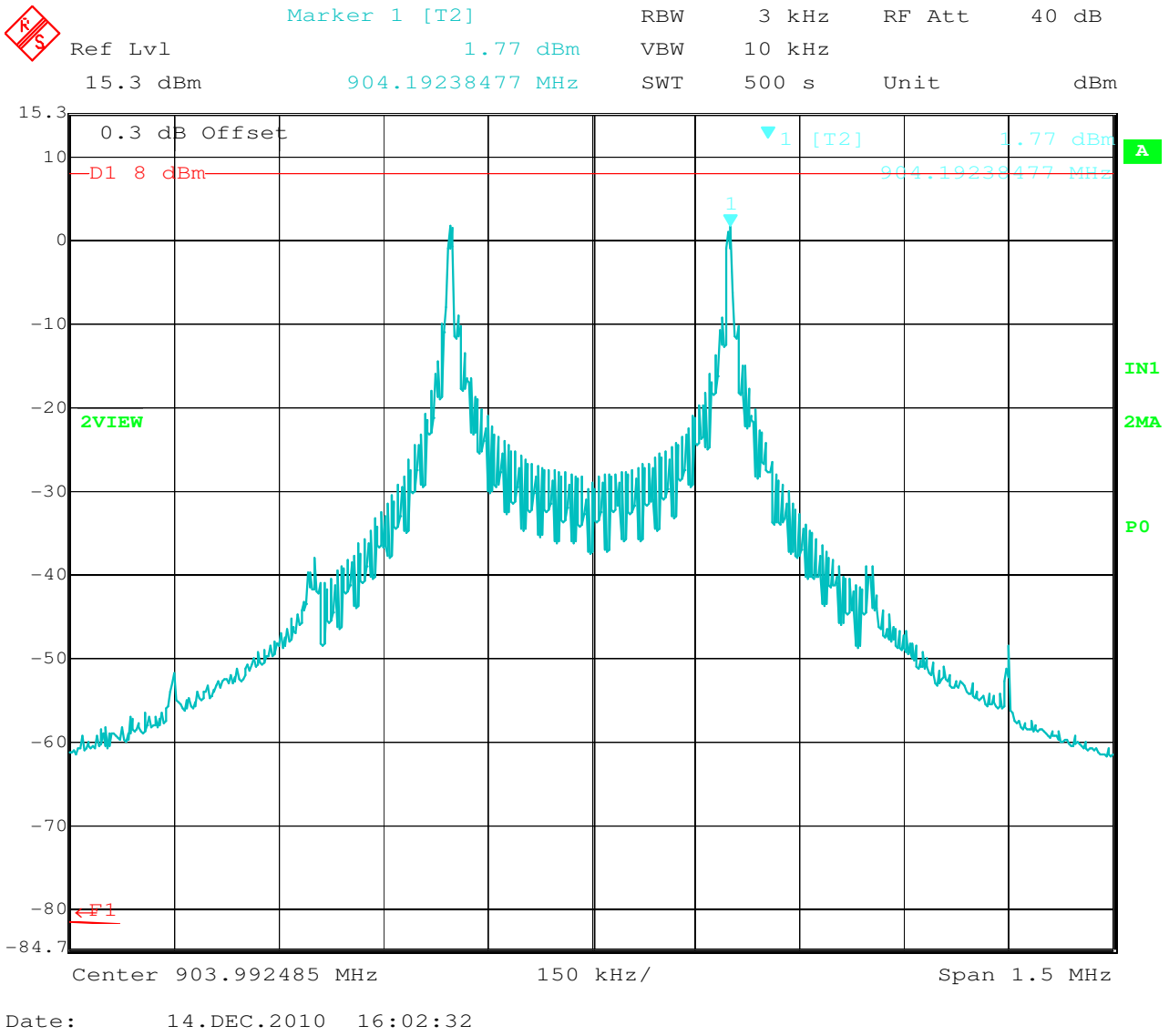
DATA SHEETS



Spectral Density Output – Low Channel



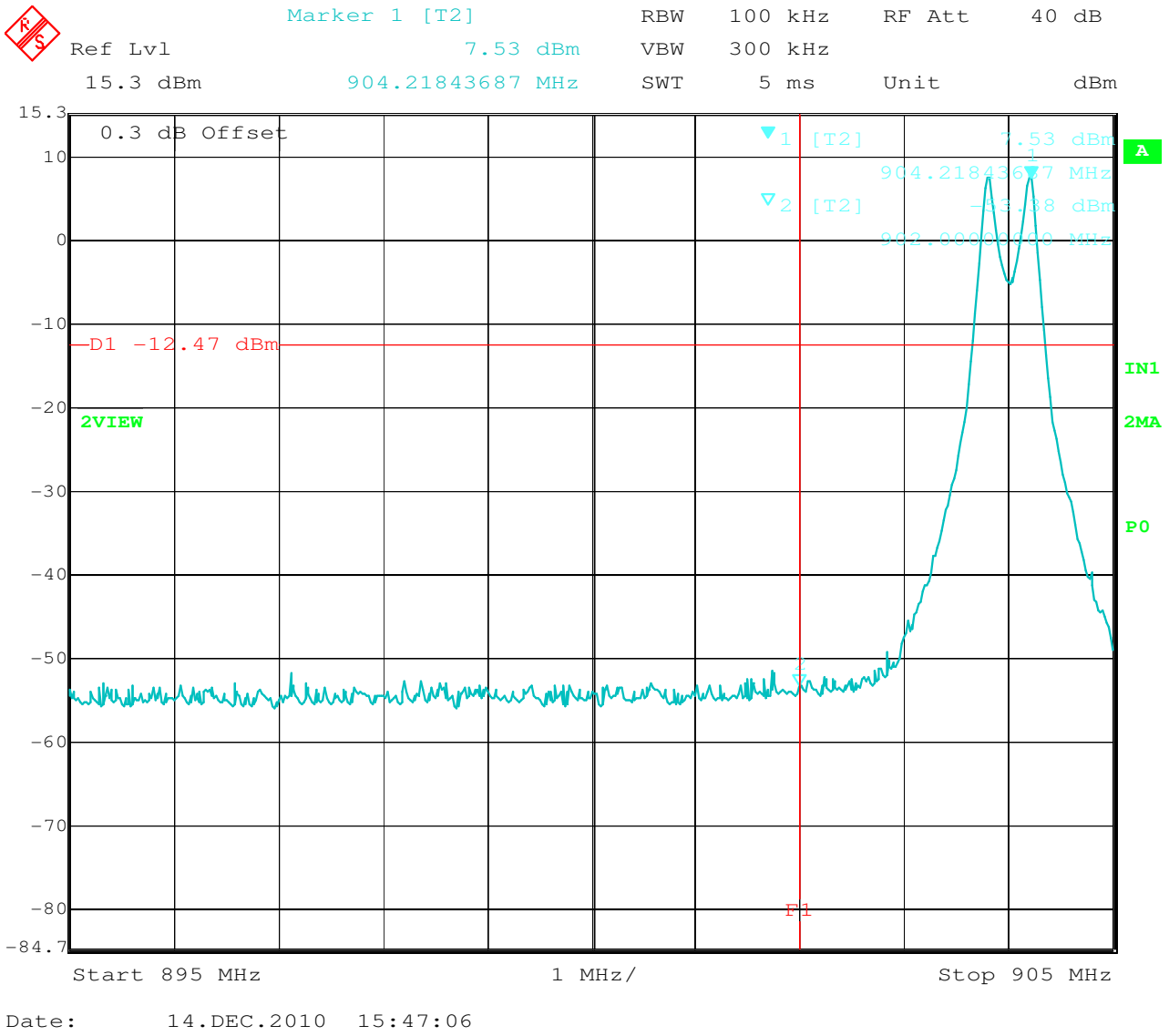
Spectral Density Output – Middle Channel



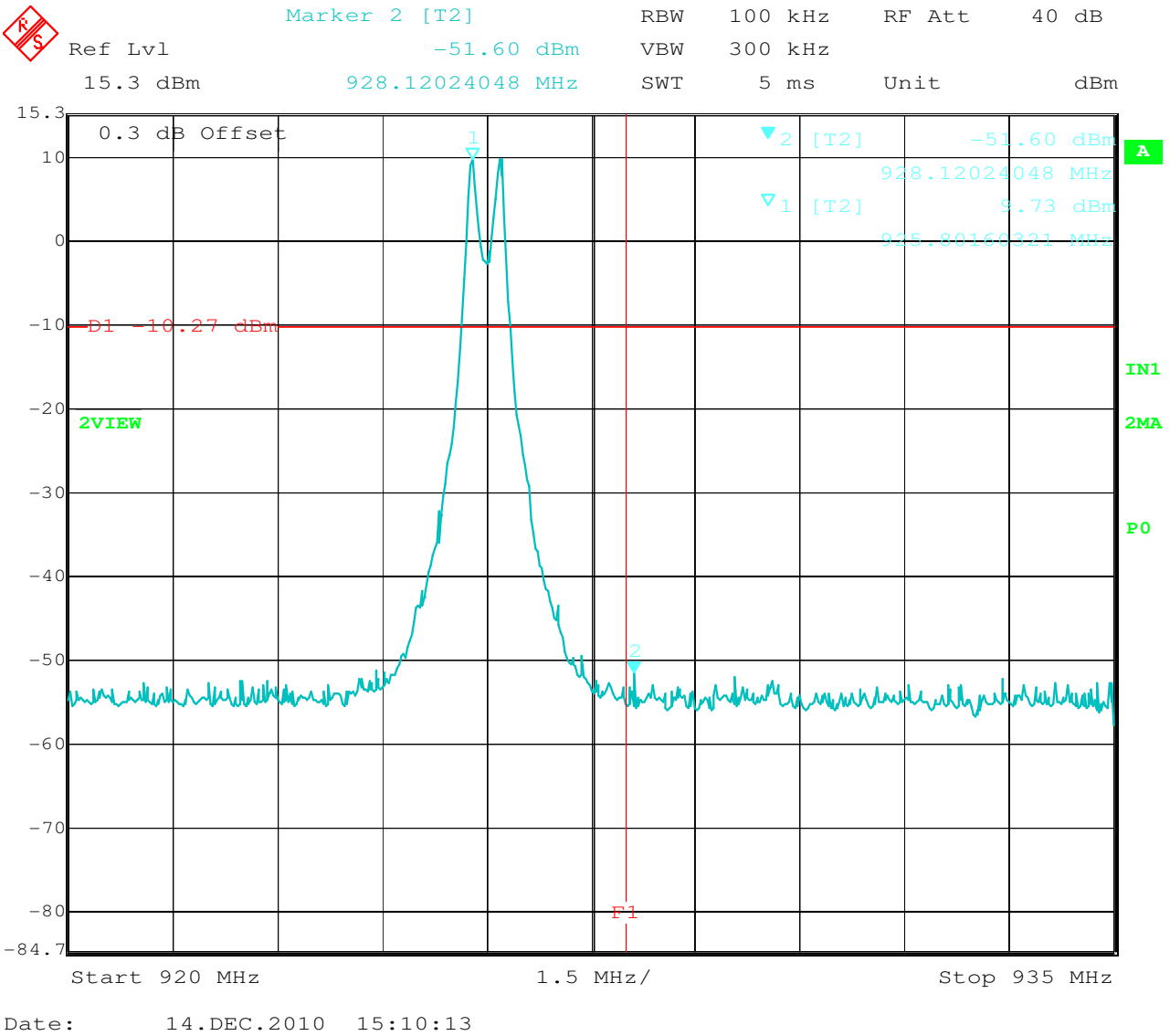
Spectral Density Output – High Channel

BAND EDGE

DATA SHEETS



Band Edge – Low Channel



Band Edge – High Channel