

FCC 15.247 Test Report

Model Name: WIP2

FCC ID: R7NWIP2

Prepared for Zultys Technologies

According to FCC Part 15 Subpart C Section 15.247
Digital Modulation (DSSS) Device

Test Report #: ZUL-0601-5118-FCC

Job Number #: ZUL-0602-1009-TCB

Prepared by: Arcelia Maldonado

QC Manager: Tony Wang

Test Report Released by:



Tony Wang

February 15, 2006

Date

List of Attached Files

Exhibit Type	File Description	File Name
<i>Form 731</i>	<i>Form 731</i>	<i>Form731.pdf</i>
<i>Agent Authorization Letter</i>	<i>Authorization Letter</i>	<i>authorization.pdf</i>
<i>Confidentiality Letter</i>	<i>Confidentiality Letter</i>	<i>confidentiality.pdf</i>
<i>Test Report</i>	<i>Test Report</i>	<i>report.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>external-photos.pdf</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>internal-photos.pdf</i>
<i>Set-up Photos</i>	<i>Test Set-up Photos</i>	<i>setup-photos.pdf</i>
<i>Block Diagram</i>	<i>Block Diagram with Technical Description</i>	<i>BlockDiag_TechDescription.pdf</i>
<i>Schematics</i>	<i>Schematics PCB for WPK Schematics PCB for WPP</i>	<i>SchematicFOR_WPK_WPP.pdf</i>
<i>ID Label/Location</i>	<i>Label Artwork and Location</i>	<i>Label_Location.pdf</i>
<i>Component List / PCB</i>	<i>BOM PCB for WPK BOM PCB for WPP</i>	<i>BOM_for_WPK_WPP.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>manual.pdf</i>
<i>RF Exposure Information</i>	<i>RF Exposure Calculation</i>	<i>rfexposure.pdf</i>

Test Location

EMC Compliance Management Group is located at 670 National Ave., Mountain View, CA 94043, USA.

Accreditation Bodies

EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.



In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.



Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of EMC Compliance Management Group Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : Digital Transmission Device

Model Name : WIP2

Model Tested : WIP2

Serial Number : Engineering Sample

Date Tested : January 30th – 31st, 2006

Applicant : Zultys Technologies
771 Vaqueros Ave., Sunnyvale, CA 94085

Telephone : (408) 328-0450

Fax : (408) 328-0451

Manufacturer : Zultys Technologies
771 Vaqueros Ave., Sunnyvale, CA 94085

EUT Description

Zultys Technologies, model WIP2 (referred to as the EUT in this report) is an IEEE 802.11b Wi-Fi phone, it is a Digital Transmission Device.

EUT Model Differences

Not applicable.

Test Summary

The Electromagnetic Compatibility requirements on tested model WIP2 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

The WIP2 has been found to conform to the following parts of the 47 CFR FCC as detailed below:

Part 15	Requirement	Result Pass/Fail	Comments
15.15(b)	General technical requirements	Pass	The product contains no user accessible controls that increase transmission power above allowable levels.
15.19	Labeling requirement	Pass	The label is shown in the label exhibit.
15.21	Information to user	Pass	Information to the user is shown in the instruction manual exhibit.
15.27	Special Accessories	Pass	No special accessories are required for compliance.
15.203	Antenna requirement	Pass	The antenna is soldered to the transmitter board, which is not used accessible, and there is no external antenna connection
15.205(a)	Radiated Emissions in Restricted Bands	Pass	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209.
15.209(a)	Radiated Emissions limits, general requirements	Pass	Spurious emissions in the Restricted bands comply with the general emission limits of 15.209.
15.107	AC Line conducted Emissions	Pass	The unit is powered by battery, it can be a receiver while charging. It complies with the limits of 15.107.
15.247 (d)	Band Edge measurements	Pass	The unit complies with the band edge emissions limits of 15.247.
15.247(a)(2)	6 dB Bandwidth > 500 KHz	Pass	The unit complies with the 6dB bandwidth limits
15.247(b)(3)	Maximum peak Output Power < 1W	Pass	The unit complies with the peak power limits of 15.247.

Continue on to next page...

15.247(e)	Peak Power Spectral Density < 8 dBm (RBW = 3 KHz)	Pass	The unit complies with the limits of 15.247.
15.247(d) 2.1051	Spurious emissions at antenna port	Pass	The unit complies with the limits of 15.247 and 15.209.
15.247(d) 15.205, 15.209	Field strength of spurious emissions	Pass	The unit complies with limits of 15.247, 15.205 and 15.209.
15.247(e)(i)	RF exposure	Pass	The unit complies with the limits of 1.1307(b)(1) and TCB exclusions list.

This report is an application for Certification of a Transmitter operation pursuant to FCC part 15.247, code of federal regulations 47. The product covered by this report is the WIP2. This report is designed to demonstrate the compliance of this device with the requirements outlined in 47 CFR Part 15 using the methods in CFR 47 Part 2 and FCC Publication 558074 (Measurement of Digital Transmission Systems Operating under Section 15.247).

Test Mode Justification

The EUT exercise program used during radiated testing was designed to exercise the various system components in a manner similar to a typical use.

For emission testing, the unit was setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper battery voltages during testing.

Equipment Modification

Any modifications installed previous to testing by Zultys technologies will be incorporated in each production model sold or leased in United States.

There were no modifications installed by EMC Compliance Management Group.

Test System Details

<i>EUT</i>				
<i>Model Name:</i>	<i>WIP2</i>			
<i>Model Tested:</i>	<i>WIP2</i>			
<i>Serial Number:</i>	<i>Engineering Sample</i>			
<i>Description:</i>	<i>Digital Transmission System</i>			
<i>Manufacturer:</i>	<i>Zultys Technologies</i>			
<i>Local Support Equipment</i>				
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>	<i>Cable Description</i>
N/A	N/A	N/A	N/A	N/A
<i>Cable Description</i>				
<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite Loaded (Y/N)</i>
N/A	N/A	N/A	N/A	N/A
<i>Remote Support Equipment</i>				
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>	<i>Cable Description</i>
<i>Wireless Router</i>	<i>WRT54G3</i>	<i>CGN601B68893</i>	<i>Zultys Technologies</i>	<i>Ethernet Cable</i>
<i>Laptop PC</i>	<i>R3000</i>	<i>4251V17</i>	<i>Compaq</i>	<i>Ethernet Cable</i>

Test Methodology

Testing was performed according to the measurement guidelines specified in FCC Publication #: 558074.

Radiated emissions testing are performed according to the procedures specified in ANSI C63.4-2003.

Frequency Range investigated: 30MHz to 25GHz

Measurement Distance: 3 meter at 30MHz to 2GHz
3 Meter and 1 Meter at 2GHz to 25GHz

EUT Power Source: Fresh Battery

Emission Maximization: Antenna (1m to 4m) height and
Horizontal/Vertical polarization
360-degree turntable rotated and EUT
rotated three orthogonal axes.

Temperature: 21°C

Humidity: 41%

Air Pressure: 1020 hpa

1. FCC 15.247 (b) (3) Maximum Peak Output Power

Peak Output Power Limit:

Frequency MHz	Channels	Types of Devices	Power Limit
2400-2483.5	From 1 to 11	DSSS	1 Watt

Test Procedure:

Remove the antenna from the EUT and then connect the transmitter output to the power meter via a suitable attenuator. Set the EUT transmitting continuously to each of low, middle, and high frequency.

Test Result:

Channel	Frequency (MHz)	Reading (dBm)	Attenuation Factor (dB)	Corrected Reading (dBm)	Limit	Result
Low (CH.1)	2412	-19.5	30	10.5	1 W (30dBm)	Pass
Middle (CH.6)	2437	-18.8	30	11.2	1 W (30dBm)	Pass
High (CH.11)	2462	-19.7	30	10.3	1 W (30dBm)	Pass

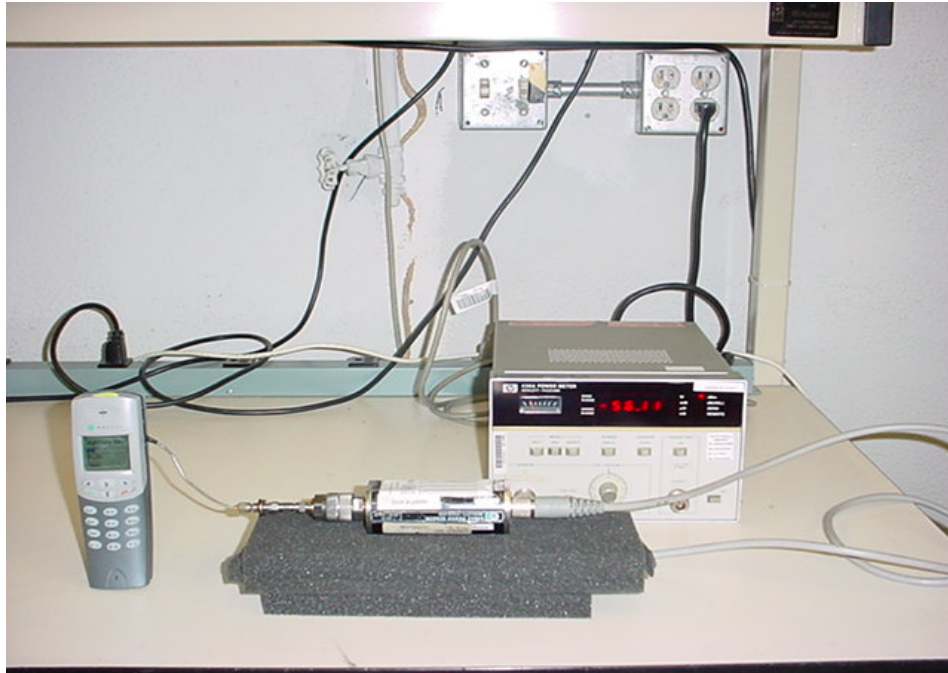
Test Equipment List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Power Meter	HP	436A	2347A17569	05/25/05	05/25/06
Power Sensor	HP	8484A	1635A01630	05/25/05	05/25/06
Attenuator	MFR	M3933/10-5	N/A	N/A	N/A

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ENGINEER

REVIEWED BY: 
QC

EUT MODEL: WIP2



Measurement Set-up

2. FCC 15.247 (a) (2) 6 dB Bandwidth

6 dB Bandwidth limit:

Per FCC 15.247(a)(2), minimum 6dB bandwidth shall be at least 500 KHz

Test Procedure:

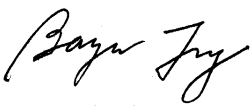
- Set the spectrum analyzer as: RBW = 100 KHz, Span > EBW
- Measure the 6 dB points by delta-marker
- Plot.

Test Results:

Channel	Frequency (MHz)	6 dB Bandwidth	Limit	Result	Plot #
Low	2412	10 MHz	>500 KHz	Pass	1
Mid	2437	10 MHz	>500 KHz	Pass	2
High	2462	9.7 MHz	>500 KHz	Pass	3

Test Equipment List:

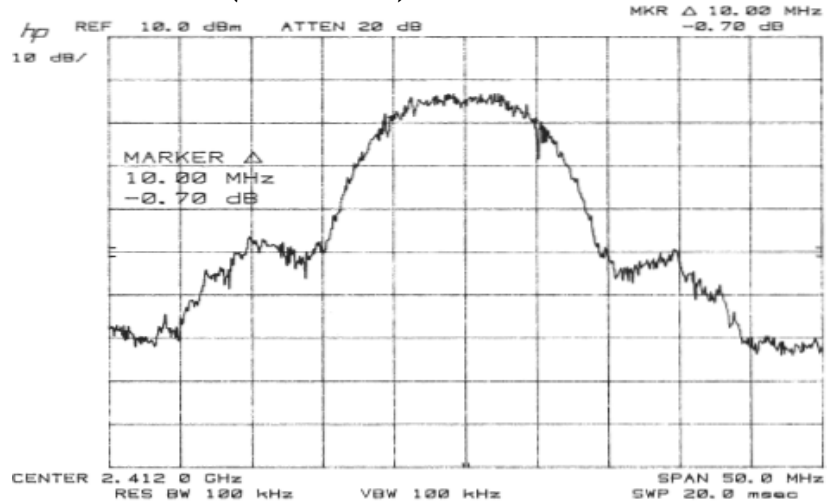
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Spectrum Analyzer	HP	8566B	2410A00224	06/02/05	06/02/06
Quasi Peak Adapter	HP	85650A	3145A01658	06/02/05	06/02/06
Plotter	HP	7470A	2308A27405	No Cal required	No Cal required

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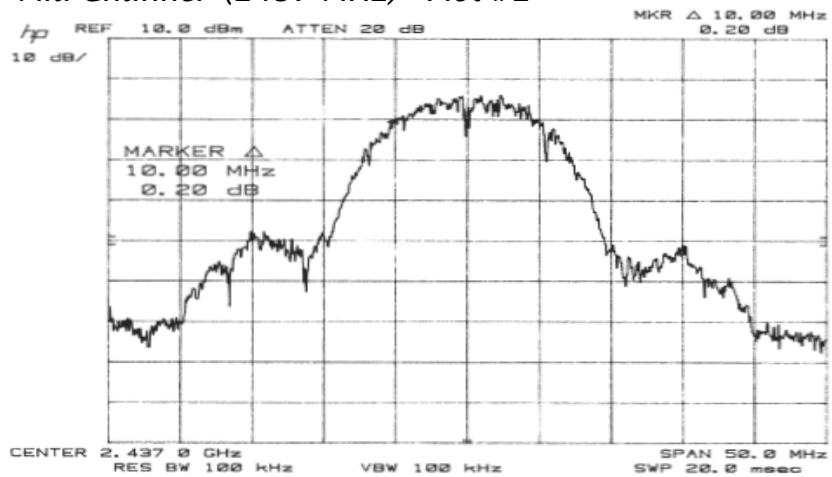
REVIEWED BY: 
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Plots of 6 dB Bandwidth

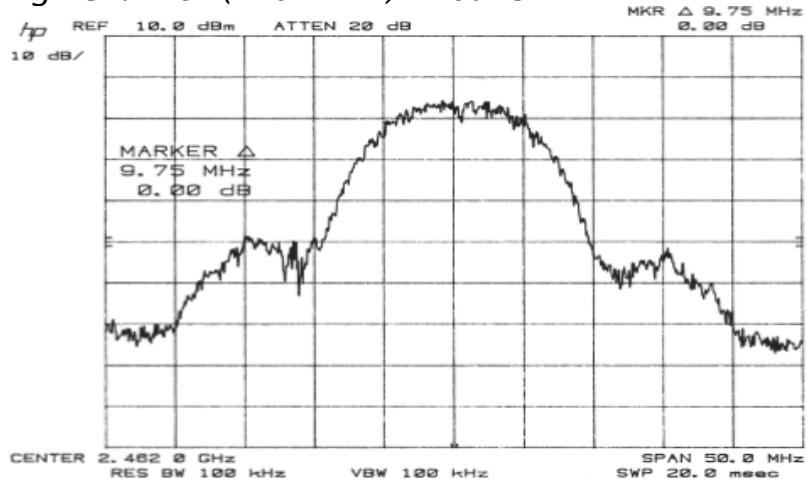
Low Channel (2412 MHz) - Plot #1



Mid Channel (2437 MHz) - Plot #2



High Channel (2462 MHz) - Plot #3



3. FCC 15.247 (e) Power Spectral Density

Power Spectral Density Limit:

According to 15.247(e), for digital modulated systems. The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band.

Test Procedures:

- Set the analyzer's center at the highest point of the maximum fundamental emission.
- Set RBW=3 KHz, VBW > or = RBW,
- Set Sweep = Span/3KHz, Detector=Peak , Trace=Max peak hold.
- Plot.

Test Results:

Channel	Center Frequency MHz	Power Spectral Density Reading (dBm)	Limit (dBm)	Result	Plot #
Low	2412	-13.7	8	Pass	4
Mid.	2437	-15.7	8	Pass	5
High	2462	-15.7	8	Pass	6

Test Equipment List:

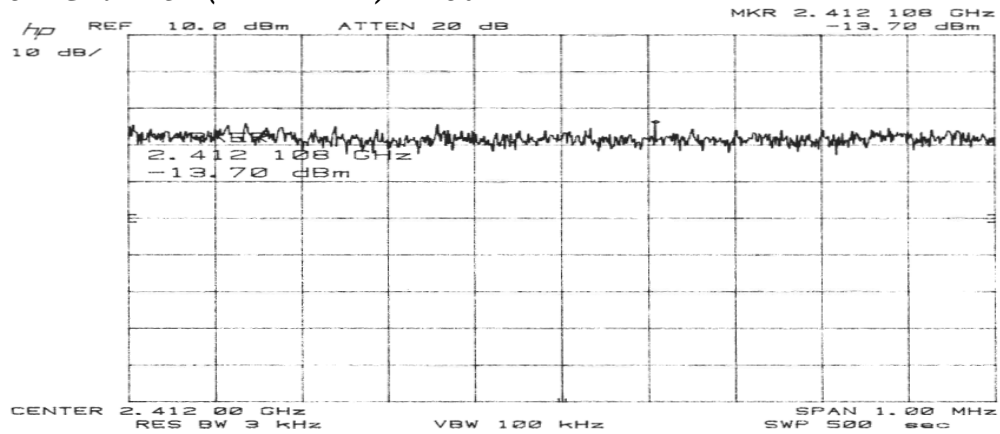
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Spectrum Analyzer	HP	8566B	2410A00224	06/02/05	06/02/06
Quasi Peak Adapter	HP	85650A	3145A01658	06/02/05	06/02/06
Plotter	HP	7470A	2308A27405	No Cal required	No Cal required

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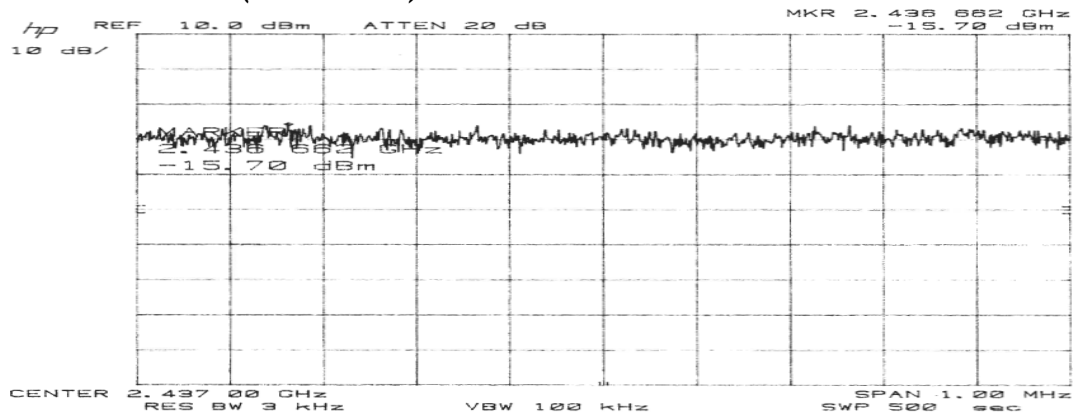
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Plots of Power Spectral Density:

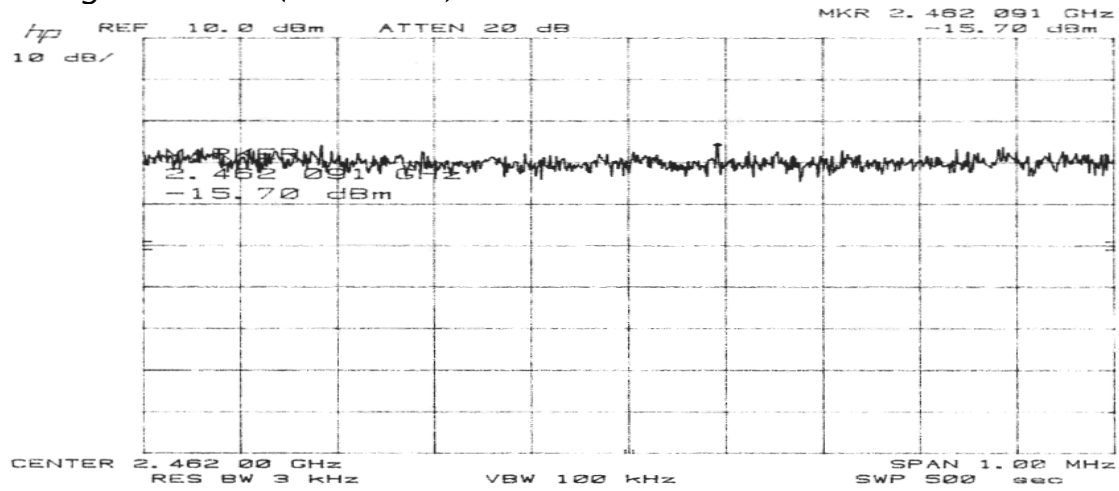
Low Channel (2412 MHz) - Plot #4



Mid Channel (2437 MHz) - Plot #5



High Channel (2462 MHz) - Plot #6



4. FCC 15.247 (d) 100 KHz Bandwidth of Band Edges

Limit for 100 KHz Bandwidth of Band Edges:

According 15.247(d), in any 100 KHz bandwidth outside the frequency band, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 KHz bandwidth within the band that contains the highest level of the desired power.

Test Procedures:

- a. Set the EUT transmitting at the lowest frequency channel.
- b. Set the analyzer: RBW=100KHz, VBW> or = RBW,
Span = Authorized Band (2.4 - 2.4835 MHz)
Trace = Max. Hold
- c. Plot it.
- d. Repeat the above for emissions outside the band.
- e. Plot it.
- f. Repeat the above for the highest frequency channel.

Test Result:

Pass, please refer to plots # 7 and 8.
(Please refer the Section 6 of this report for the radiated value at band edge).

Test Equipment List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Spectrum Analyzer	HP	8566B	2410A00224	06/02/05	06/02/06
Quasi Peak Adapter	HP	85650A	3145A01658	06/02/05	06/02/06
Plotter	HP	7470A	2308A27405	No Cal required	No Cal required

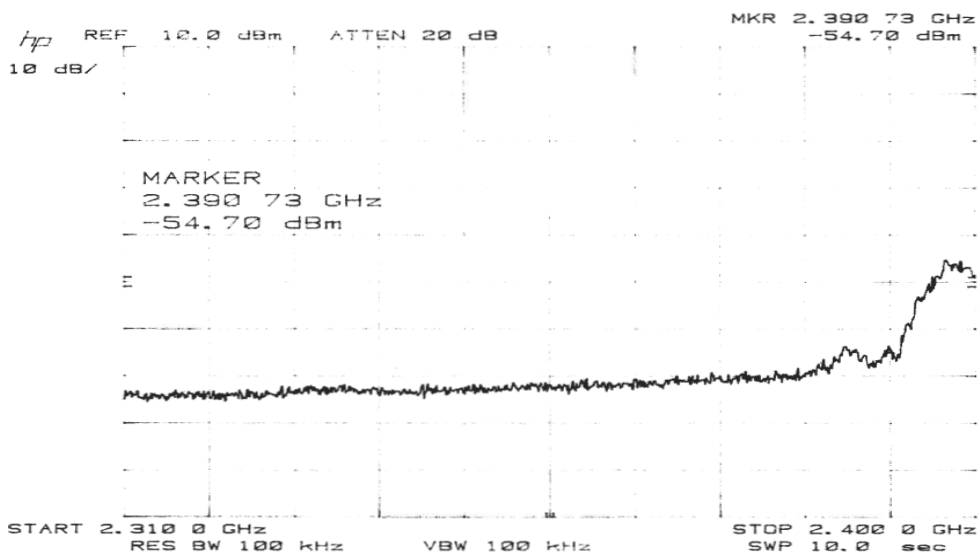
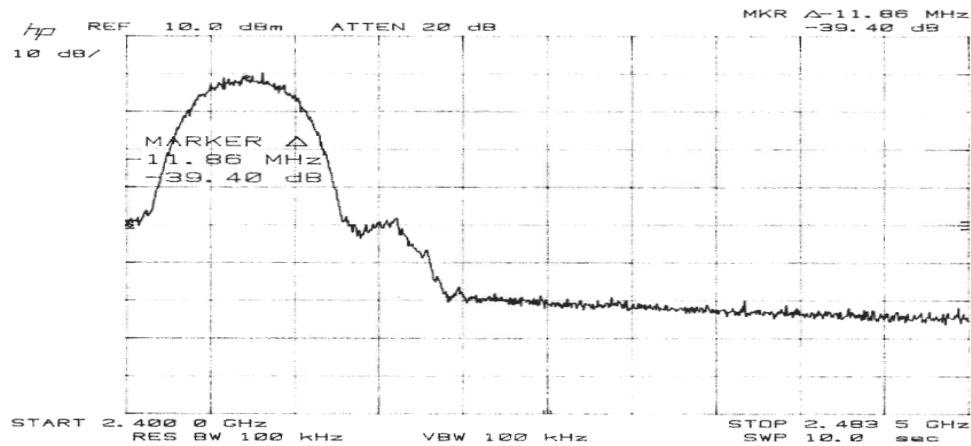
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ENGINEER

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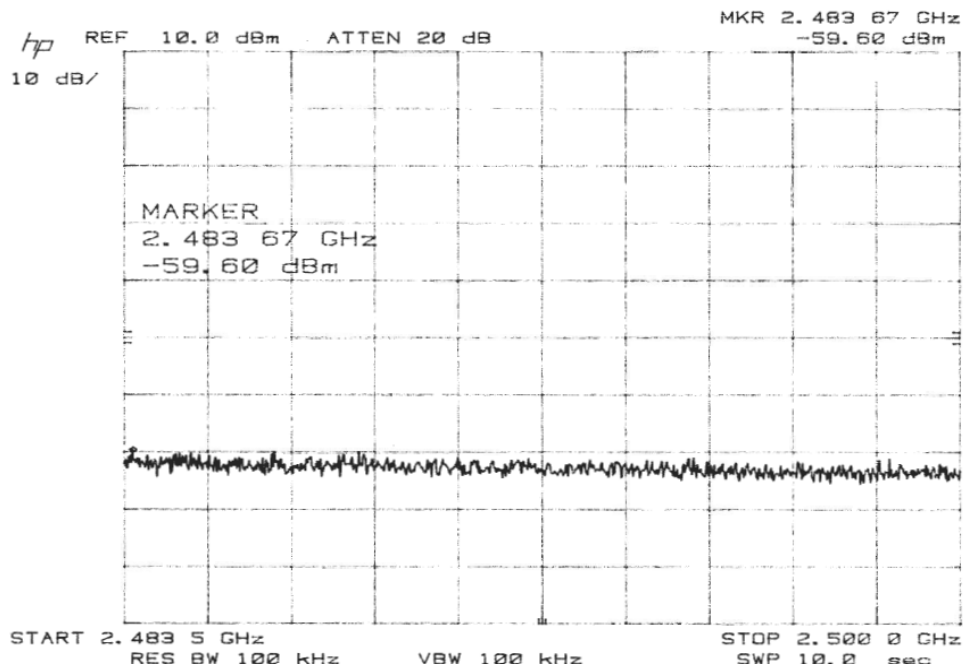
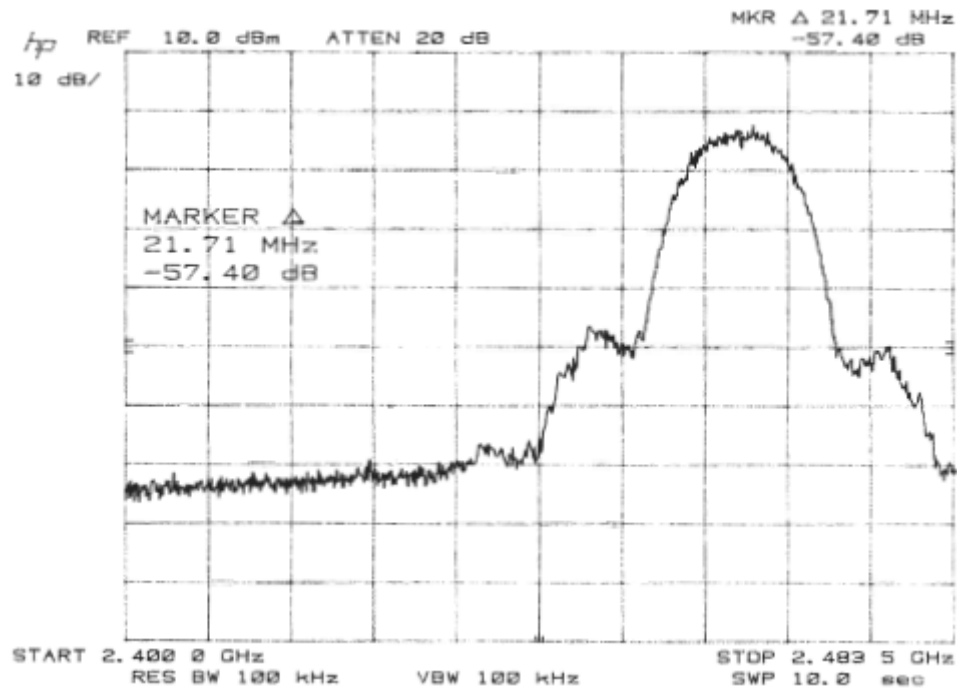
Plots of 100KHz Bandwidth of Band Edges:

Lowest Channel:

Plot #7



**Highest Channel:
Plot #8**



5. FCC 15.247 (d) & FCC 2.1051 Spurious Emissions at Antenna Port

Limit of Spurious Emissions at Antenna Port:

According to 2.1051,
According 15.247(d), in any 100 KHz bandwidth outside the frequency band, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 KHz bandwidth within the band that contains the highest level of the desired power.

Test Procedures:

- Set RBW = 100KHz, VBW > or = RBW
- Scan from 30 MHz to 10th harmonic frequency.
- Max peak hold.
- Plot.

Test Data:

(Please refer to plot # 9, 10 and 11).

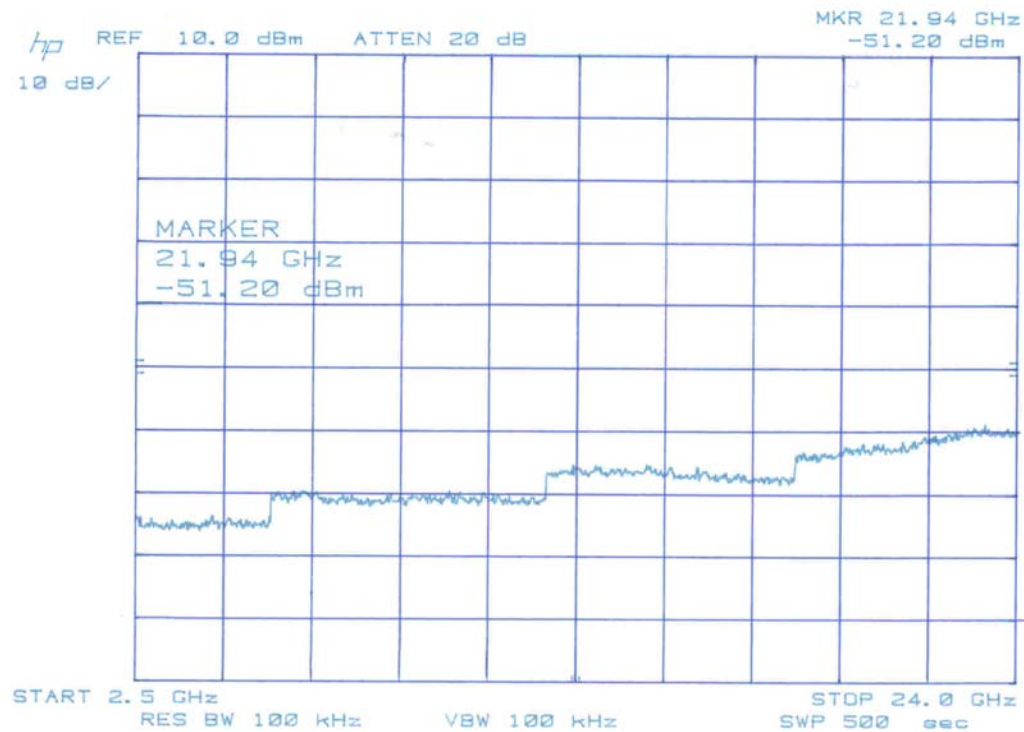
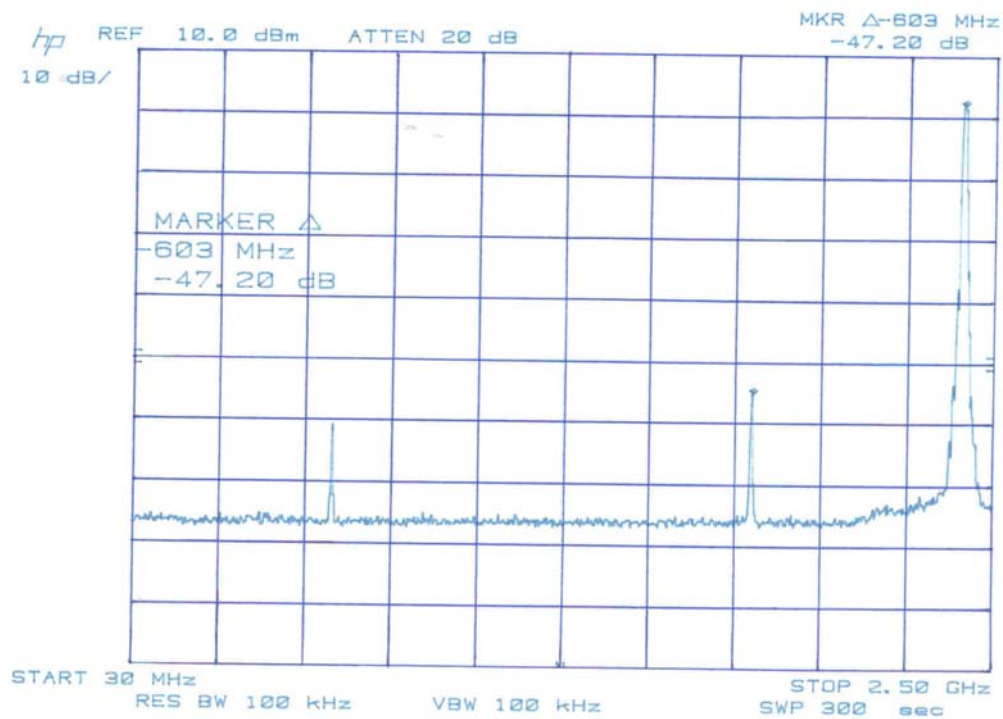
Test Equipment List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
Spectrum Analyzer	HP	8566B	2410A00224	06/02/05	06/02/06
Quasi Peak Adapter	HP	85650A	3145A01658	06/02/05	06/02/06
Plotter	HP	7470A	2308A27405	No Cal required	No Cal required

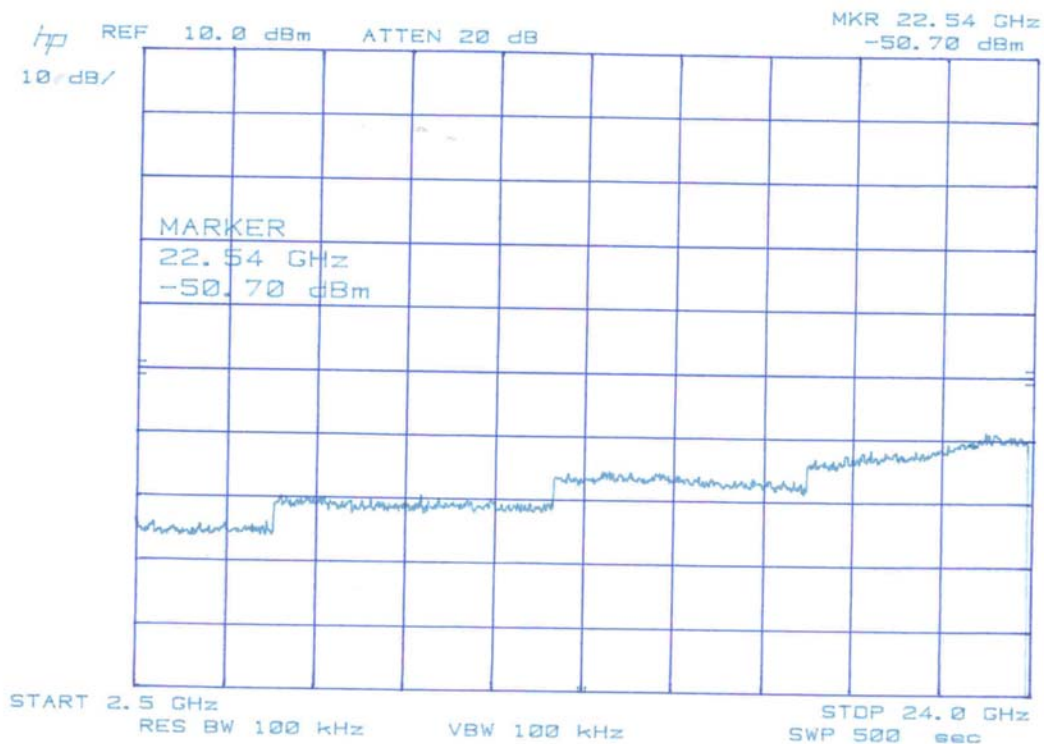
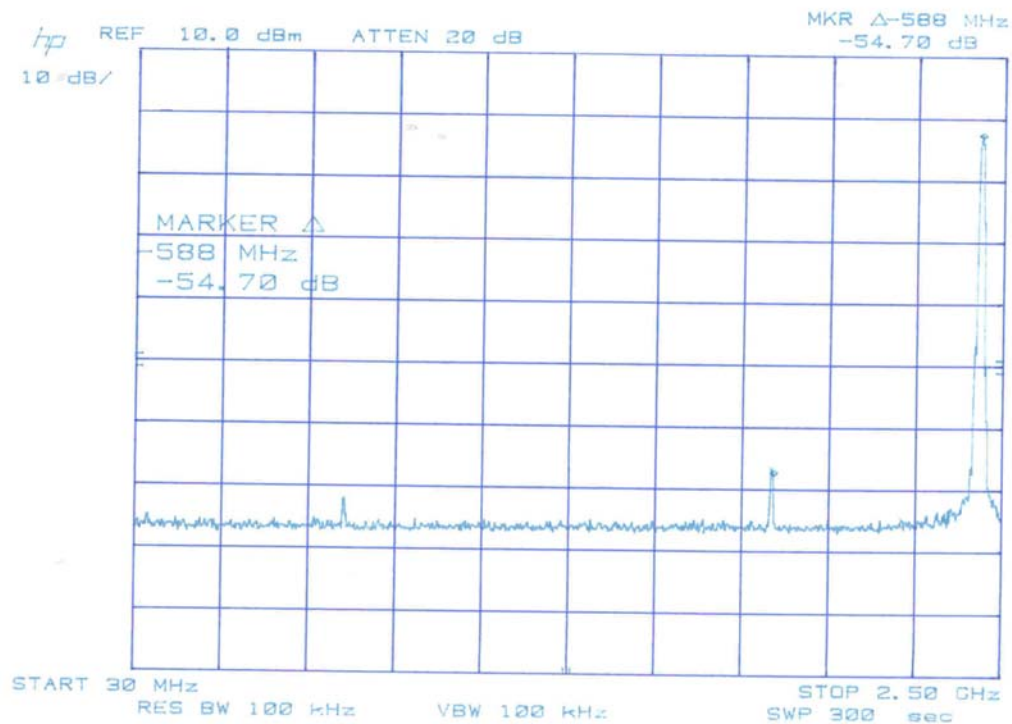
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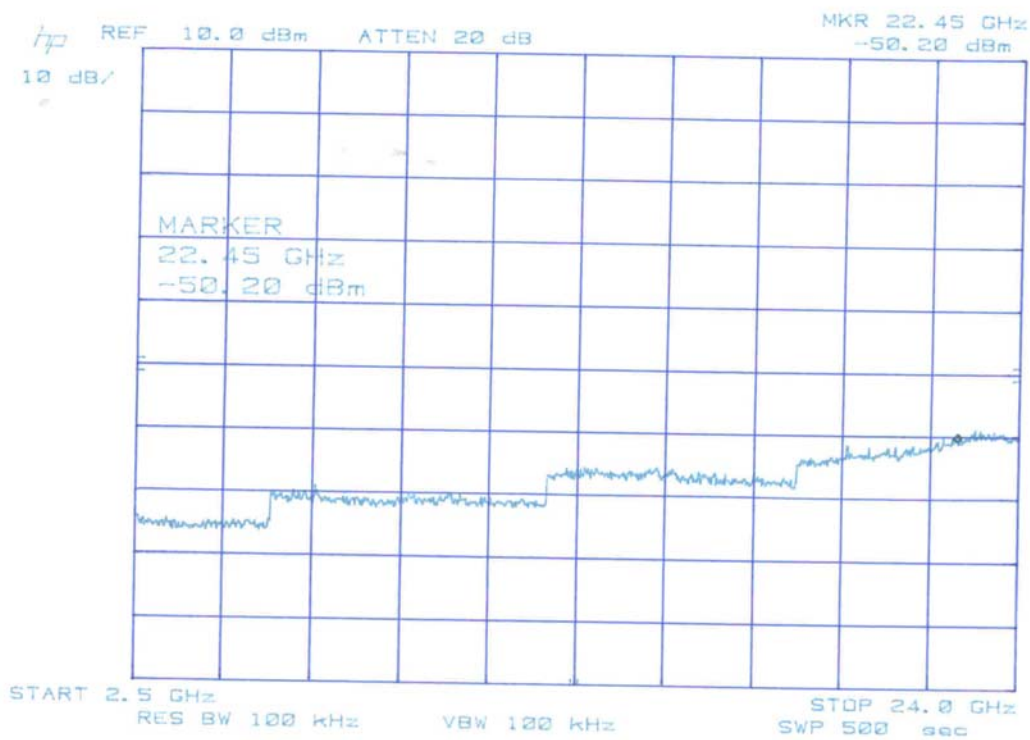
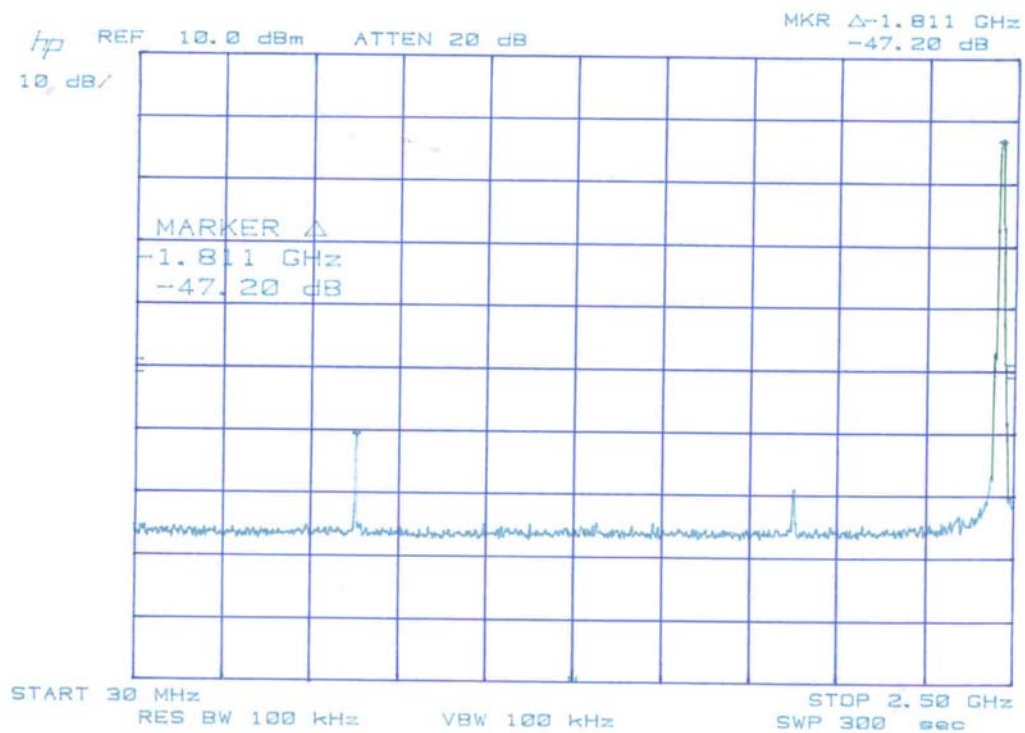
Plots of Spurious Emissions at Antenna Port:
Low channel - Plot #9



Mid Channel - Plot # 10



High Channel - Plot #11



6. FCC 15.247(d) & 15.205 (a) Field Strength of Spurious Emissions

Limit:

According to the 15.247(d), the RF power that is produced by the radiator shall be at least 20 dB below that in the 100 KHz bandwidth within the band that contains the highest level of the desired power, based on either a RF conducted or a radiated measurement.

Radiated emissions, which fall in the restricted band, must comply with the radiated emission limits specified in 15.209(a)

Frequency (MHz)	Field strength (micro volts/meter)	Measure distance (meters)
0.009-0.490	2400 /F (KHz)	300
0.490-1.705	24000 /F (KHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Limited for Radiated Emissions (FCC 47 CFR 15.209):

Frequency (MHz)	Field Strength (uV/m)	QP (dBuV/m) (3m)
1.705 - 30	30	49.54
30 - 88	100	40.00
88 - 216	150	43.52
216 - 960	200	46.02
960 Above	500	53.98

* $\text{dBuV/m} = 20 \times \text{Log (uV/m)}$

Test Procedures:

- a. The EUT was tested for radiated emissions out of operating band, and in the restricted bands. The EUT was replaced on a non-conductive table at a height of 0.8 meter above the ground plane of a 3 meter test site. For each frequency investigated, the turntable was rotated 360 degrees. And the antenna was raised and lowered in both horizontal and vertical polarizations, in an attempt to maximize the received emissions.
- b. The EUT was also placed in the three orthogonal axes.
- c. For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at 3 meter separation distance to determine whether these emissions complied with the general radiated emissions requirement.
- d. High-pass filter may be used for measurement.

Instrument Setup:

<i>Frequency</i>	<i>RES BW</i>	<i>VID BW</i>	<i>Detector</i>
< 1 GHz	100 KHz	100 KHz	Peak
> 1 GHz	1 MHZ	1 MHZ	Peak
> 1 GHz	1 MHZ	10 Hz	Ave.

Test Equipment List:

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
EMI Receiver	R&S	ESMI-RF	849937/006	04/25/05	04/25/06
EMI Receiver	R&S	ESAI-D	825035/005	04/25/05	04/25/06
Bi-log Antenna	CHASE	CBL6112A	2257	06/14/05	06/14/06
Horn Antenna	EMCO	3115	001	06/04/05	06/04/06
Horn Antenna	EMCO	3160-09	20372	06/04/05	06/04/06
Pre-Amplifier	MITEQ	50-8P	AFSX4-020018005	03/10/05	03/10/06
Pre-Amplifier	TEC	PA-102	44054	03/03/05	03/03/06
High Pass Filter	REACTEL	7HS-4/18 S11	942	No Cal required	No Cal required
High Pass Filter	Mini-circuits	NHP-900	1-9752	No Cal required	No Cal required

SIGNED BY: 
ENGINEER

REVIEWED BY: 
QC

Field Strength of Spurious Emissions Measurement Data :

Set-up/Configuration: ANSI
C63.4:2003, CISPR 16-1:2002

Low Channel, Scan 1 - 25 GHz

Frequency (MHz)	Antenna Polar (V/H)	Raw Reading (dBuV/m)	Correction Factor			Corrected Reading (dBuV/m)	3 Meters Limit (dBuV/m)	Margin (dB)	Comment
			Antenna (dB)	Cable (dB)	Pre-amp (dB)				
2412	V	91.6	30.2	5.37	24.59	102.58			FUND
2412	H	87.5	30.2	5.37	24.59	98.48			FUND
2390	V	43.3	30.2	5.37	24.59	54.28	74	-19.72	Peak
2390	H	42.1	30.2	5.37	24.59	53.08	74	-20.92	Peak
2390	V	31.5	30.2	5.37	24.59	42.48	54	-11.52	Ave
2390	H	30.2	30.2	5.37	24.59	41.18	54	-12.82	Ave
2400	V	55.4	30.2	5.37	24.59	66.38	74	-7.62	Peak
2400	H	53.5	30.2	5.37	24.59	64.48	74	-9.52	Peak
2400	V	32.6	30.2	5.37	24.59	43.58	54	-10.42	Ave
2400	H	31.7	30.2	5.37	24.59	42.68	54	-11.32	Ave
4824	V	41.3	33.4	7.55	25.93	56.32	74	-17.68	Peak
4824	H	40.2	33.4	7.55	25.93	55.22	74	-18.78	Peak
4824	V	25.1	33.4	7.55	25.93	40.12	54	-13.88	Ave
4824	H	24.9	33.4	7.55	25.93	39.92	54	-14.08	Ave
7236	V	38.7	36.8	9.99	23.1	62.39	74	-11.61	Peak
7236	H	36.5	36.8	9.99	23.1	60.19	74	-13.81	Peak
7236	V	21.8	36.8	9.99	23.1	45.49	54	-8.51	Ave
7236	H	20.3	36.8	9.99	23.1	43.99	54	-10.01	Ave

Mid Channel, Scan 1 - 25 GHz

Frequency (MHz)	Antenna Polar (V/H)	Raw Reading (dBuV/m)	Correction Factor			Corrected Reading (dBuV/m)	3 Meters Limit (dBuV/m)	Margin (dB)	Comment
			Antenna (dB)	Cable (dB)	Pre-amp (dB)				
2437	V	92.8	30.2	5.37	24.59	103.78			FUND
2437	H	88.4	30.2	5.37	24.59	99.38			FUND
4874	V	41.5	33.4	7.55	25.93	56.52	74	-17.48	Peak
4874	H	40.6	33.4	7.55	25.93	55.62	74	-18.38	Peak
4874	V	25.4	33.4	7.55	25.93	40.42	54	-13.58	Ave
4874	H	24.8	33.4	7.55	25.93	39.82	54	-14.18	Ave
7311	V	38.9	36.8	9.99	23.1	62.59	74	-11.41	Peak
7311	H	36.3	36.8	9.99	23.1	59.99	74	-14.01	Peak
7311	V	22.1	36.8	9.99	23.1	45.79	54	-8.21	Ave
7311	H	20.5	36.8	9.99	23.1	44.19	54	-9.81	Ave

EMC Test Report #: ZUL-0601-5118-FCC

Job Number #: ZUL-0602-1009-TCB

Prepared for Zultys Technologies

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High Channel, Scan 1 - 25 GHz

Frequency (MHz)	Antenna Polar (V/H)	Raw Reading (dBuV/m)	Correction Factor			Corrected Reading (dBuV/m)	3 Meters Limit (dBuV/m)	Margin (dB)	Comment
			Antenna (dB)	Cable (dB)	Pre-amp (dB)				
2462	V	92.1	30.2	5.37	24.59	103.08			FUND
2462	H	87.3	30.2	5.37	24.59	98.28			FUND
2483.5	V	43.9	30.2	5.37	24.59	54.88	74	-19.12	Peak
2483.5	H	43.1	30.2	5.37	24.59	54.08	74	-19.92	Peak
2483.5	V	33.4	30.2	5.37	24.59	44.38	54	-9.62	Ave
2483.5	H	32.9	30.2	5.37	24.59	43.88	54	-10.12	Ave
4924	V	41.3	33.4	7.55	25.93	56.32	74	-17.68	Peak
4924	H	39.9	33.4	7.55	25.93	54.92	74	-19.08	Peak
4924	V	25.2	33.4	7.55	25.93	40.22	54	-13.78	Ave
4924	H	24.7	33.4	7.55	25.93	39.72	54	-14.28	Ave

Note: 1) FUND = Fundamental, Peak = Peak Detector, Ave = Average Detector.
2) The levels of the frequencies above third harmonic are too low to be tested.
3) EUT is set and measured at three orthogonal axes.

Unwanted Emissions from 30 - 1000MHz

Frequency (MHz)	Antenna Polar (V/H)	Raw Reading (dBuV/m)	Correction Factor			Corrected Reading (dBuV/m)	3 Meters Limit (dBuV/m)	Margin (dB)	Comment
			Antenna (dB)	Cable (dB)	Pre-amp (dB)				
59.22	V	42.7	8.5	0.7	21	30.9	40	-9.1	Peak
100.04	V	43.3	11.2	0.8	21	34.3	43.5	-9.2	Peak
174.5	V	40.9	12.4	0.8	21	33.1	43.5	-10.4	Peak
200.03	V	42.2	13.3	0.9	21	35.4	43.5	-8.1	Peak
232.78	V	44.3	11.8	1.1	21	36.2	46	-9.8	Peak
247.44	H	41.9	12.2	1.2	21	34.3	46	-11.7	Peak
249.96	H	43.2	12.3	1.2	21	35.7	46	-10.3	Peak
300.01	V	43.6	13.9	1.4	21	37.9	46	-8.1	Peak
332.86	V	42.9	14.1	1.4	21	37.4	46	-8.6	Peak
400	V	40.2	16	1.3	21	36.5	46	-9.5	Peak
500.03	V	38.7	18	1.6	21	37.3	46	-8.7	Peak
600.04	H	35.9	19.1	1.7	21	35.7	46	-10.3	Peak

Note: EUT is set and measured at three orthogonal axes.

SIGNED BY:

ENGINEER

REVIEWED BY:

QC

EMC Test Report #: ZUL-0601-5118-FCC

Job Number #: ZUL-0602-1009-TCB

Prepared for Zultys Technologies

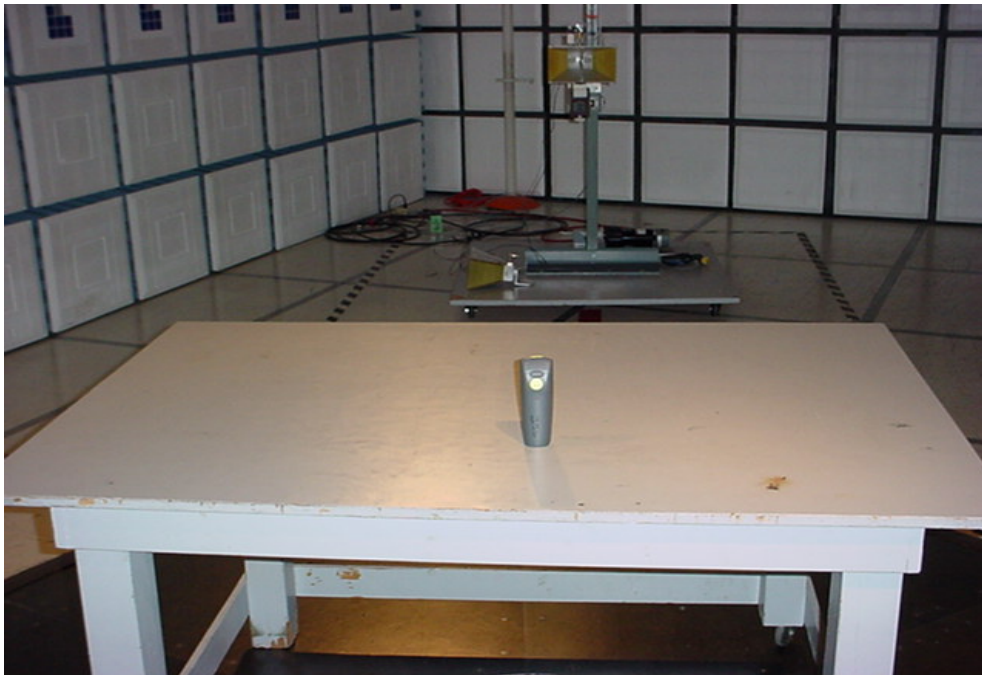
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EUT MODEL: WIP2



Radiated Test Set-up Front View (1)



Radiated Test Set-up Rear View (1)

EUT MODEL: WIP2



Radiated Test Set-up Front View (2)



Radiated Test Set-up Rear View (2)

7. FCC 15.107 RF Conducted Emissions to AC Power Line

Limit of RF Voltage Conducted to AC Line:

The WIP2 is powered by battery, it can be as receiver only while charging. According to the 15.107(d), devices use battery chargers, which permit operating while charging shall be tested to demonstrate compliance with the conducted limits.

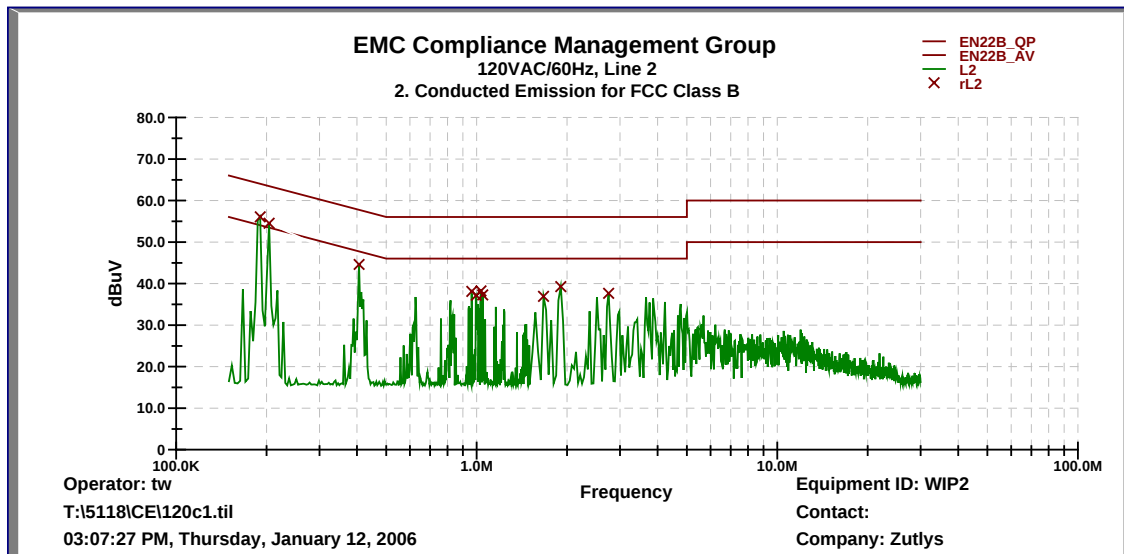
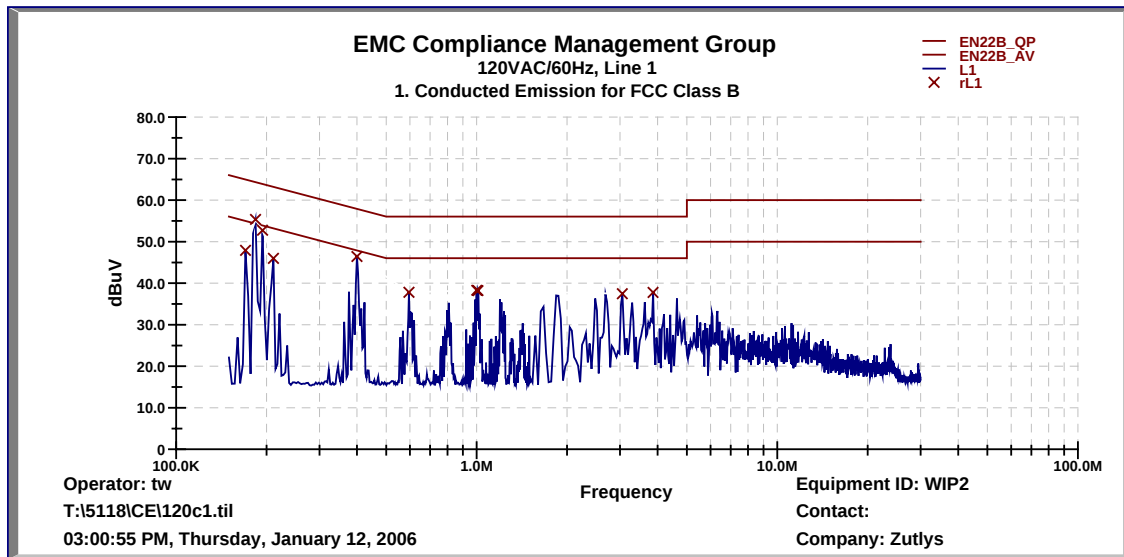
Frequency (MHz)	QP (dBuV)	Average (dBuV)
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

Test Procedure:

The EUT was set up according to the ANSI C63.4 Section 7 & Section 12.13. The measurement was using a LISN line on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged. The frequency range investigated was from 150KHz to 30 MHz.

Test Result:

Line	Frequency (MHz)	Corrected QP Reading (dBuV)	Delta QP (dB)	Corrected AVE Reading (dBuV)	Delta AVE (dB)	Result
L1	0.1855	51.75	-13.24	34.27	-20.72	Pass
L1	0.1870	52.50	-12.44	35.19	-19.76	Pass
L1	0.2011	52.82	-11.72	38.49	-16.05	Pass
L1	0.4062	44.07	-14.61	34.09	-14.59	Pass
L1	0.5000	40.43	-15.57	29.23	-16.77	Pass
L1	1.0140	35.73	-20.27	26.54	-19.47	Pass
L2	0.1894	50.80	-14.07	33.62	-21.25	Pass
L2	0.2010	49.68	-14.86	30.76	-23.78	Pass
L2	0.4169	42.35	-16.02	29.44	-18.94	Pass
L2	0.5000	40.81	-15.19	27.54	-18.46	Pass
L2	1.0420	35.05	-20.95	21.12	-24.89	Pass
L2	2.7070	35.35	-20.65	25.10	-20.91	Pass



Test Equipment List:

Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
EMI Receiver	HP	85462A	3650A00363	11/11/05	11/11/06
RF Filter	HP	85460A	3704A00349	11/11/05	11/11/06
LISN	EMCO	3825/2	9103-1799	01/10/05	01/10/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated and traceable to the National Institute of Standards and Technology (NIST).					

SIGNED BY: 
ENGINEER

REVIEWED BY: 
QC

EUT MODEL: WIP2

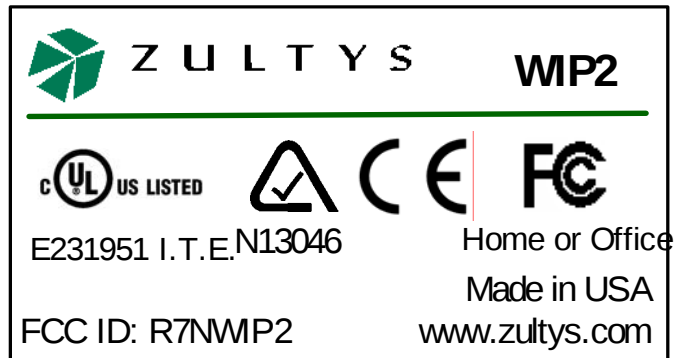


AC Line Conducted Emission Test Set-up Front View



AC Line Conducted Emission Test Set-up Rear View

ID Label and Location:



EUT MODEL: WIP2

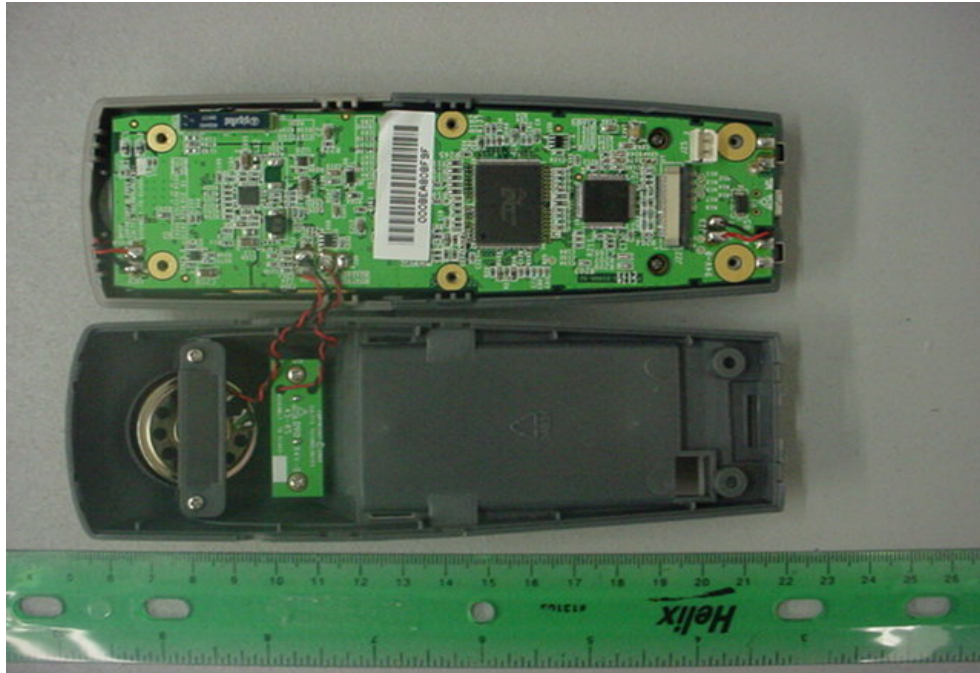


EUT Top View

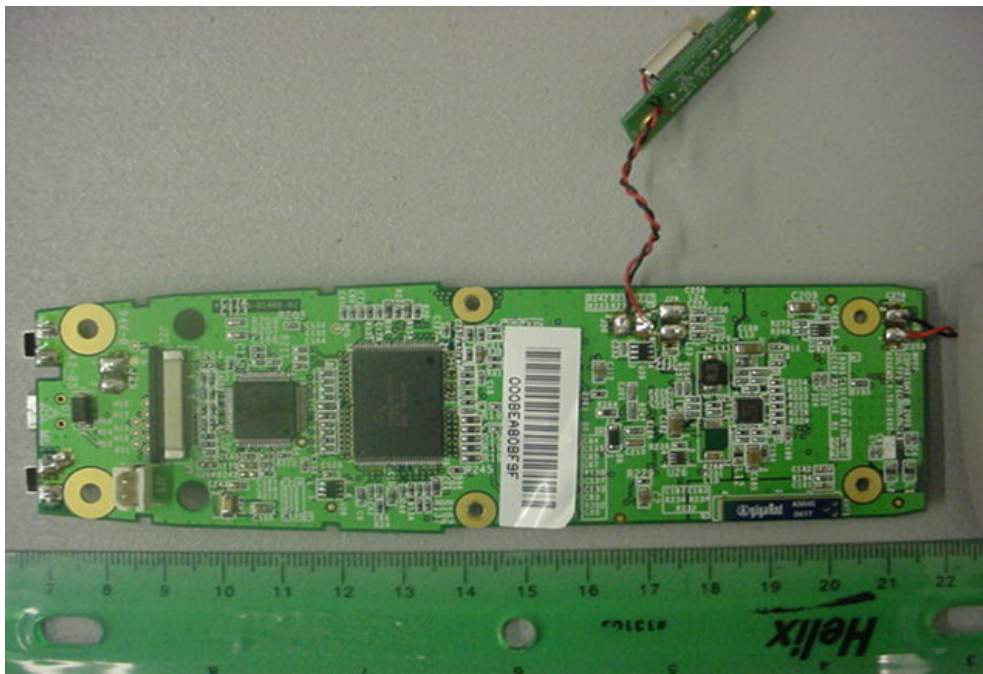


EUT Bottom View

EUT MODEL: WIP2

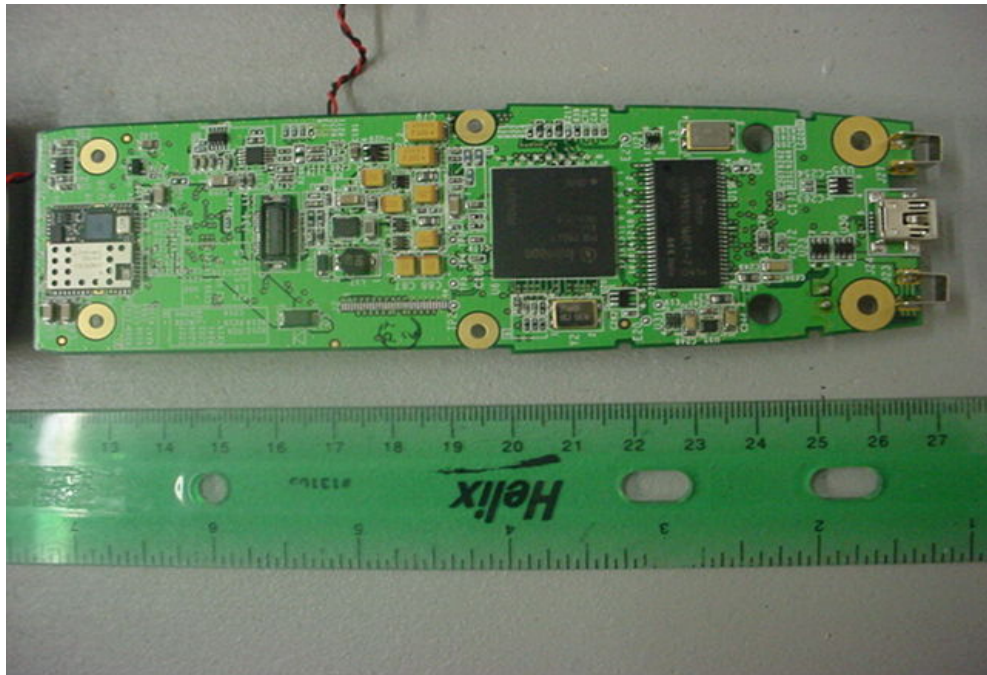


Circuit Board and Housing View

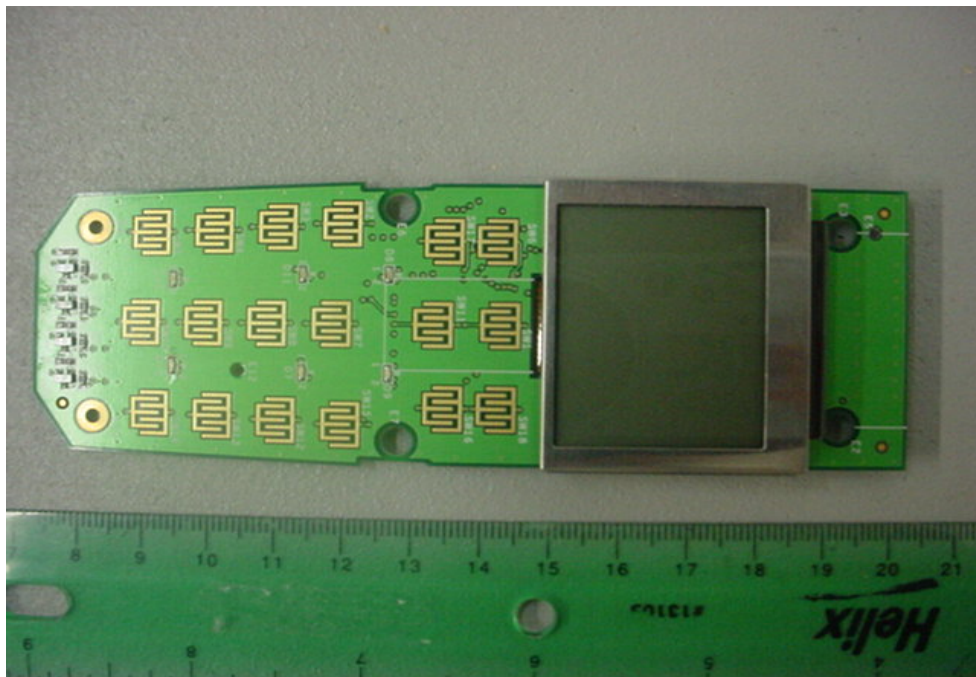


Main Board Top View

EUT MODEL: WIP2

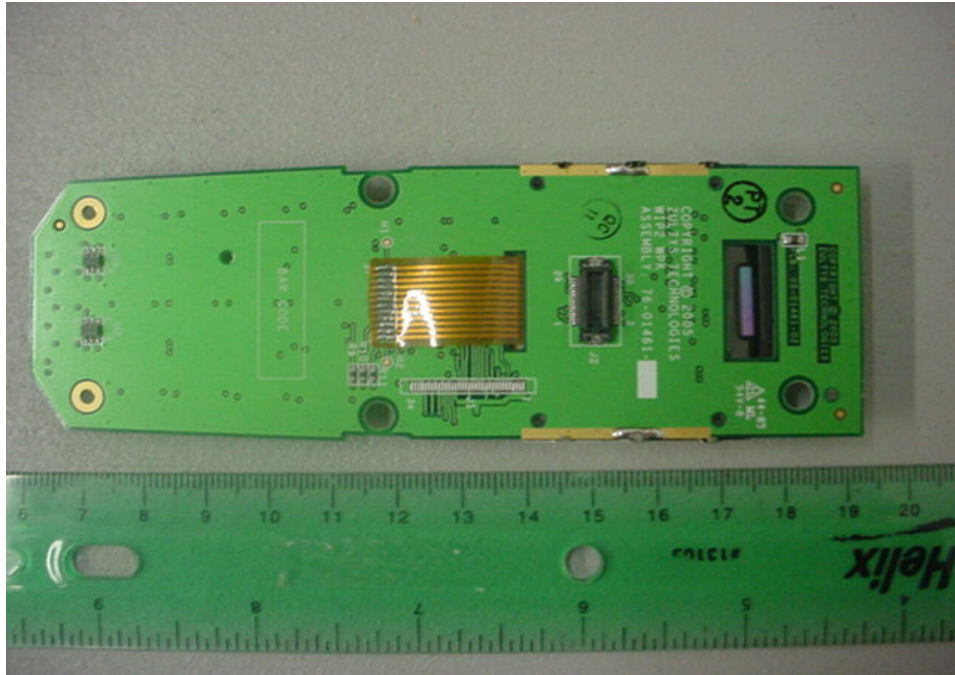


Main Board Bottom View

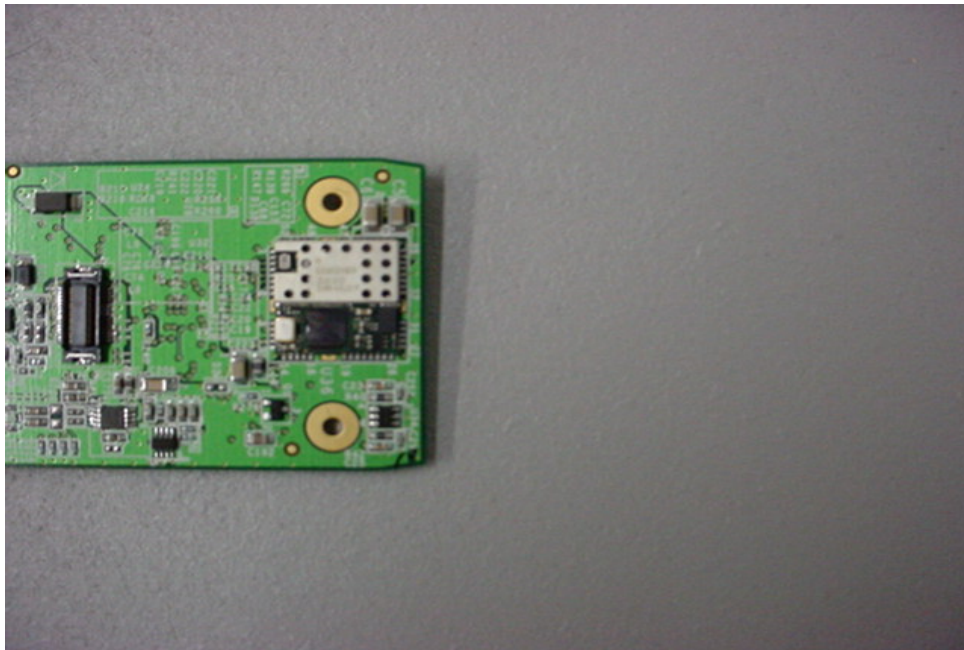


Display Board Top View

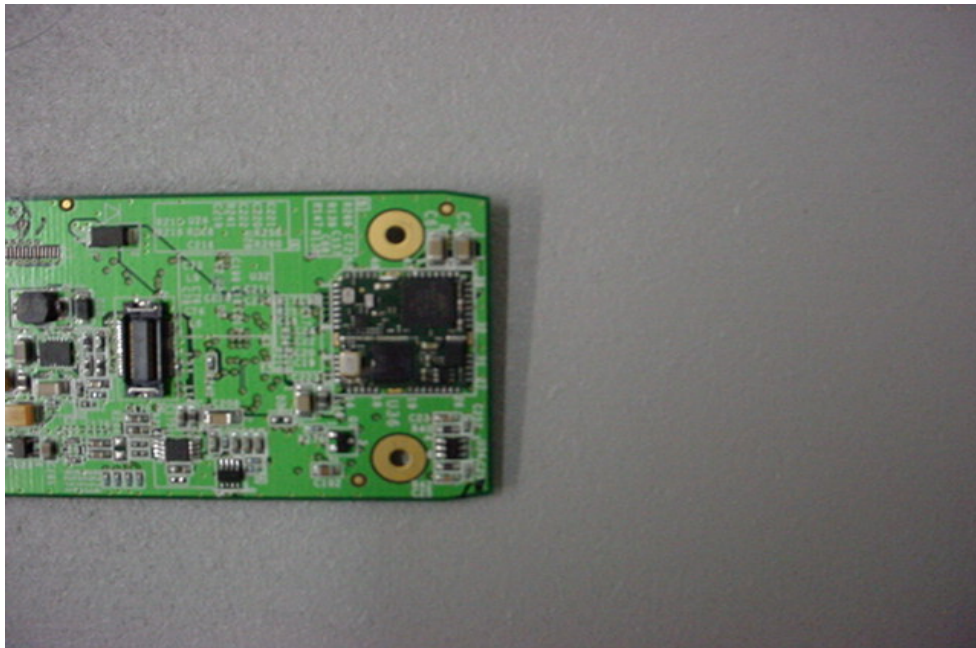
EUT MODEL: WIP2



Display Board Bottom View



Transceiver View



Transceiver – Shield Cover Removed View



Battery Charger

EUT MODEL: WIP2



AC/DC Adapter