AquaCheck (Pty) LTD

TEST REPORT FOR

Basic II Wireless Probe
Model: ACBPROBE_xM

Tested To The Following Standards:

FCC Part 15 Subpart C Section 15.247

Report No.: 94367-6

Date of issue: April 14, 2014

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

AquaCheck (Pty) LTD
1325 Hackberry St.
Bennet, NE 68317

REPRESENTATIVE: Arthur Pickworth

REPORT PREPARED BY:

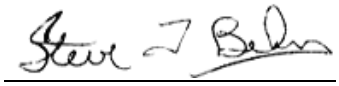
Morgan Tramontin
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 94367

DATE OF EQUIPMENT RECEIPT: March 17, 2014
DATE(S) OF TESTING: March 17 - April 9, 2014

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
1120 Fulton Place
Fremont, CA 94539

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont	US0082	SL2-IN-E-1148R	3082B-1	958979	A-0149

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Test Procedure/Method	Description	Results
15.31(e)	Voltage Variation	Pass
15.247(a)(2) / DA 00-705	Occupied Bandwidth	Pass
15.247(b)(3) / DA 00-705	RF Power Output	Pass
15.247(d) / DA 00-705	Antenna Conducted Emissions	Pass
15.247(d) / DA 00-705	Field Strength of Radiated Spurious Emissions and Band Edge	Pass
15.247(e) / DA 00-705	Power Spectral Density	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Basic II Wireless Probe
Manuf: AquaCheck (Pty) LTD
Model: ACBPROBE_xM
Serial: 21648

Batteries Lithium Pack
Manuf: QC
Model: SB6044
Serial: None

900MHz Band Antenna
Manuf: SkyWare Antennas
Model: 16-1003-A
Serial: None

GSW Wide Band Antenna
Manuf: RF Design
Model: ANT-GSM-ST-SM-M5
Serial: None

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) CFR 47 Section 15 Subpart C requirements for Intentional Radiators.

15.31(e) Voltage Variations

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.31e**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Power Measurement** Time: 08:25:41
Equipment: **Basic II Wireless Probe** Sequence#: 1
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

RF output power =10mW and attenuator " 1"
RBW = 1MHz
VBW= 3MHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10
Transmit Frequency Range =902 to 928MHz
Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz
The EUT is set to continuously transmit
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power
15.31e: Using the new batteries

Test Setup Photo(s)

Note: For section 15.31(e) it is not required to have a test setup photo.

15.247(a)(2) Occupied Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **OBW**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Power Measurement** Time: 08:25:41
Equipment: **Basic II Wireless Probe** Sequence#: 1
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

OBW Set up

RF output power =10mW and attenuator " 1"

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

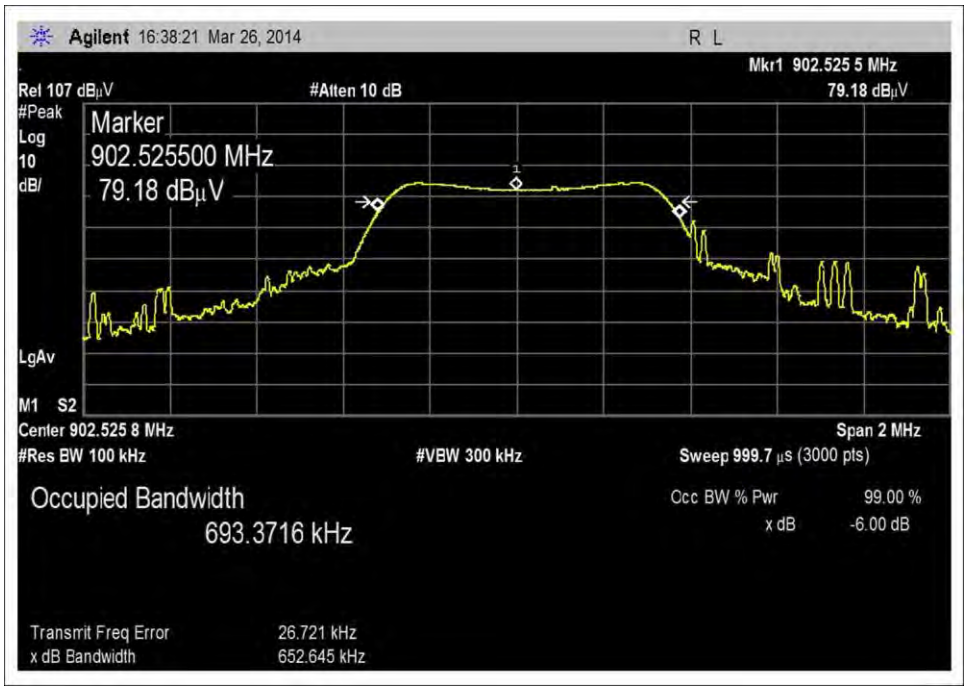
Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

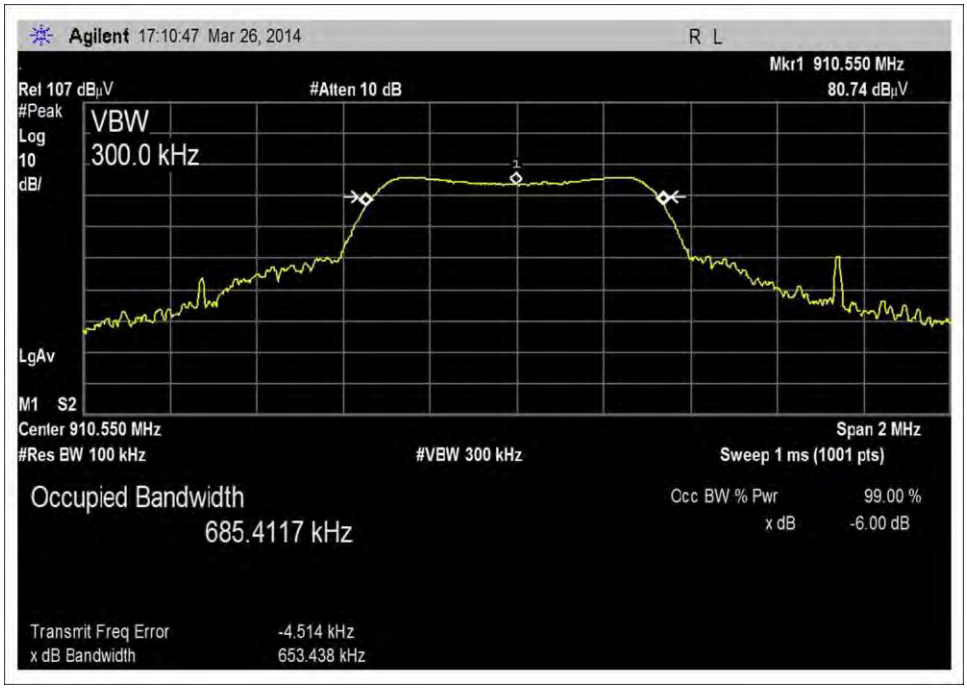
The EUT is set to continuously transmit.

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.

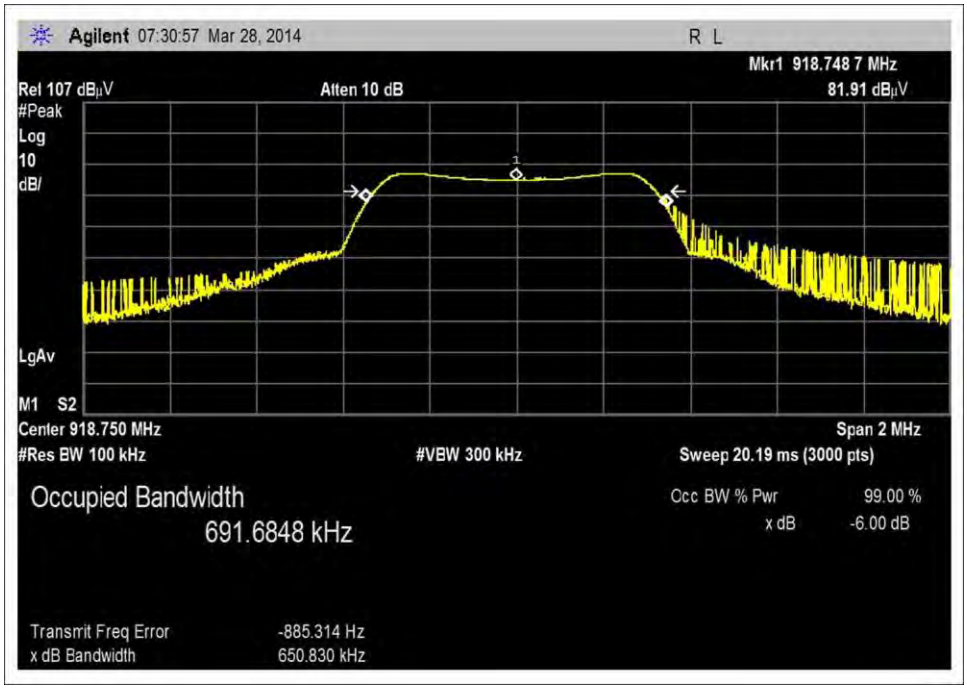
Test Data



Low Channel

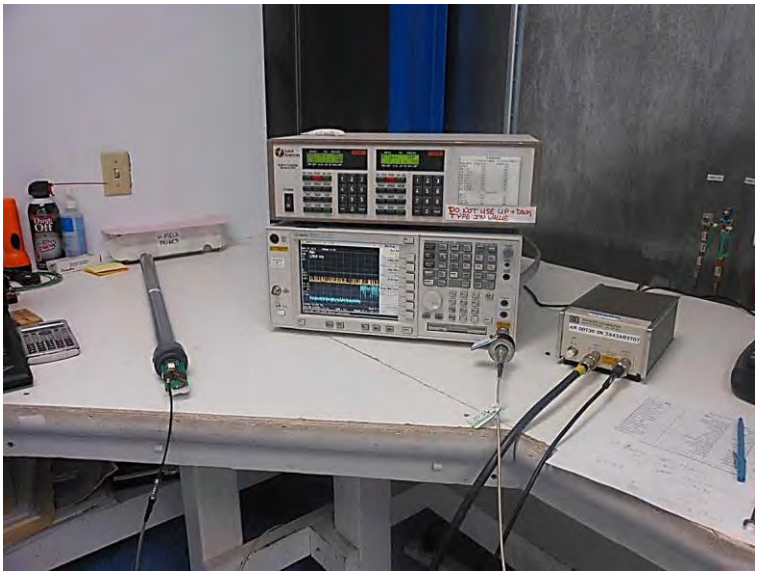


Middle Channel



High Channel

Test Setup Photo(s)



Test Setup

Test Setup - Close View

15.247(b)(3) RF Power Output

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(b) Power Output (902-928 MHz DTS)**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Power Measurement** Time: 08:25:41
Equipment: **Basic II Wireless Probe** Sequence#: 1
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Fundamental of the EUT

RF output power =10mW and attenuator " 1"
RBW = 1MHz
VBW= 3MHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is set to continuously transmit.

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.

Ext Attn: 0 dB

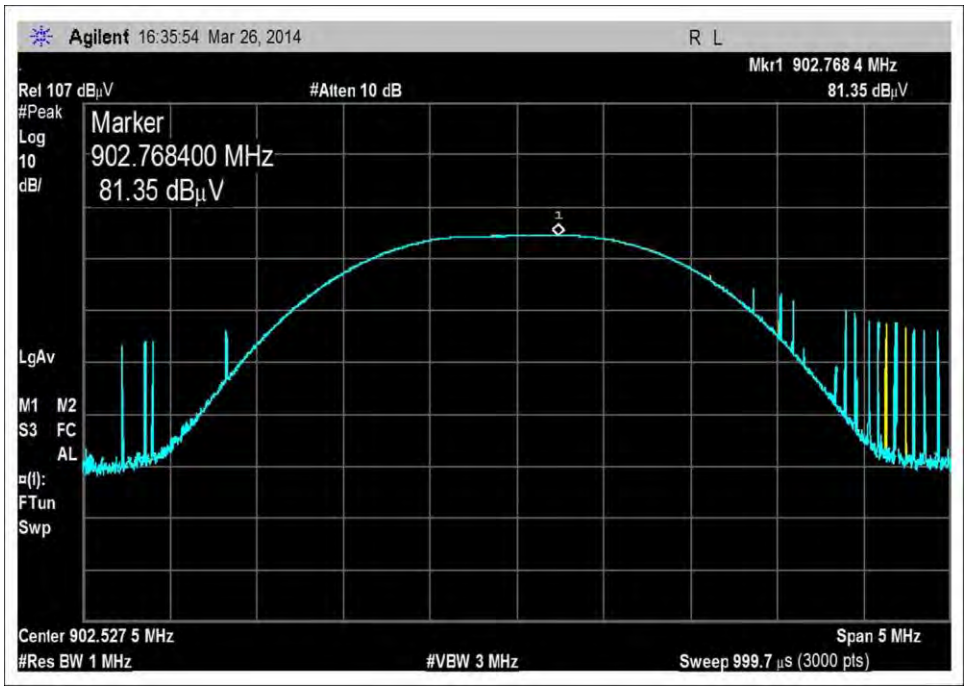
Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	918.992M	84.2	+9.9	+0.7			+0.0	94.8	137.0 High Channel	-42.2	None
2	910.810M	82.9	+9.9	+0.7			+0.0	93.5	137.0 Middle Channel	-43.5	None
3	902.768M	81.5	+9.9	+0.7			+0.0	92.1	137.0 Low Channel	-44.9	None

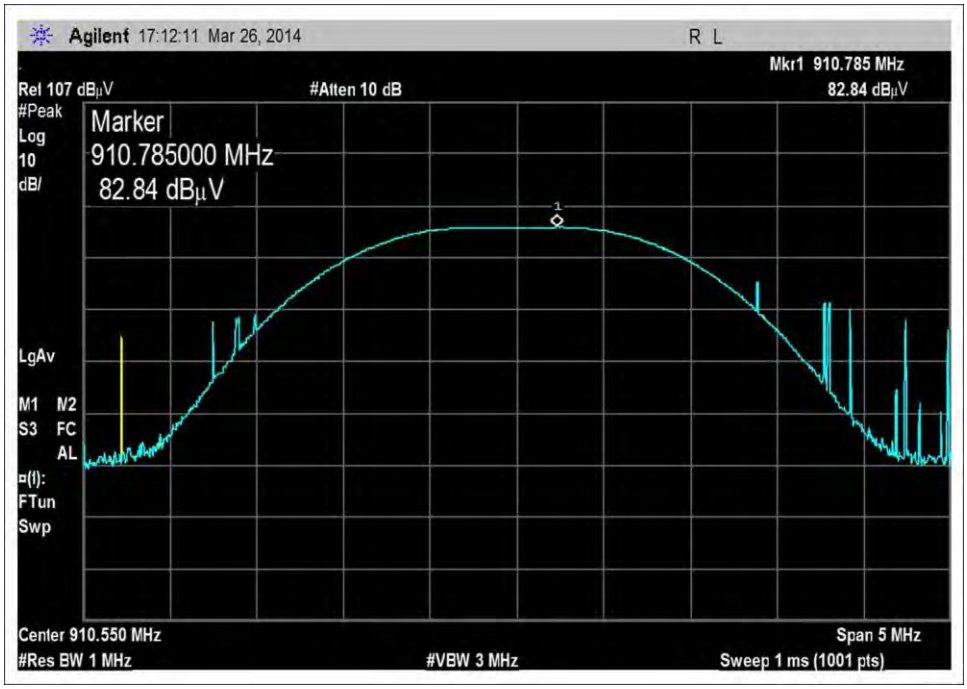
Convert equivalent electric field strength to the resultant power level

Frequency (MHz)	Measured Power in Watts	Power Limit in Watts	Pass/Fail
Low Channel	0.000032359	1.00	Pass
Middle Channel	0.000044668	1.00	Pass
High Channel	0.000060256	1.00	Pass

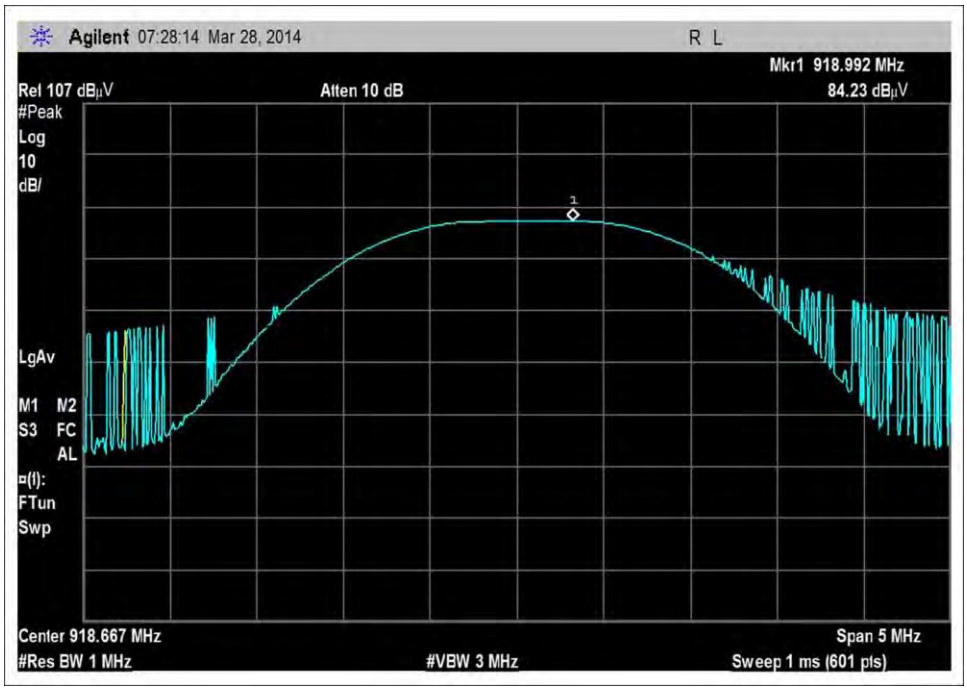
Test Data



Low Channel



Middle Channel



High Channel

Test Setup Photo(s)

Test Setup

Test Setup - Close View

15.247(d) Antenna Conducted Emissions

The Reference level measurement for Emission is non restricted frequency bands were made using the methods set out in KDB "558704 D01 DTS Meas. Guidance v03r01", Section 11 Emissions in non-restricted frequency band
Note: The Reference Level is the limit line for Radiated Spurious Emission and Conducted Spurious Emission.

Reference level measurement in 100kHz Table					
Channel	Power Level (dBm)	Power Level (dBuV)	Reference level for Conducted (dBuV)	Power Level (dBuV/m)	Reference level for Radiated (dBuV/m)
LO	-14.9	92.1	72.1	80.3	60.3
MID	-13.5	93.5	73.5	81.7	61.7
HI	-12.2	94.8	74.8	83.1	63.1

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) Conducted Spurious Emissions**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Spurious Emission** Time: 11:00:12 AM
Equipment: **Basic II Wireless Probe** Sequence#: 4
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Conducted Spurious Emission
Frequency Range: 9kHz to 10000MHz

RF output power =10mW and attenuator " 1"
RBW = 100kHz
VBW= 300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz
Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

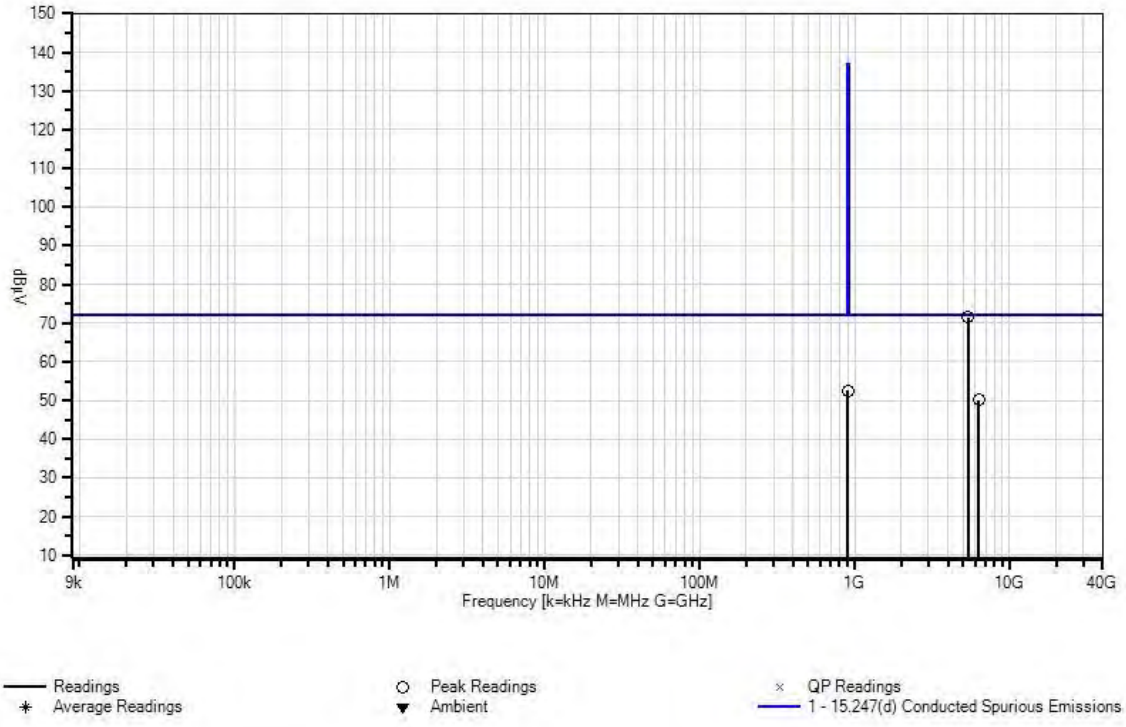
The EUT is set to continuously transmit.
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Low Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5416.341M	59.8	+10.1	+1.6			+0.0	71.5	72.1	-0.6	None
2	901.024M	42.0	+9.9	+0.7			+0.0	52.6	72.1	-19.5	None
3	6318.549M	38.4	+10.0	+1.8			+0.0	50.2	72.1	-21.9	None

CKC Laboratories, Inc Date: 3/28/2014 Time: 11:00:12 AM AquaCheck (Pty) LTD WO#: 94367
Test Distance: None Sequence#: 4



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) Conducted Spurious Emissions**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Spurious Emission** Time: 11:45:59
Equipment: **Basic II Wireless Probe** Sequence#: 5
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Conducted Spurious Emission
Frequency Range: 9kHz to 10000MHz

RF output power =10mW and attenuator " 1"
RBW = 100kHz
VBW= 300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

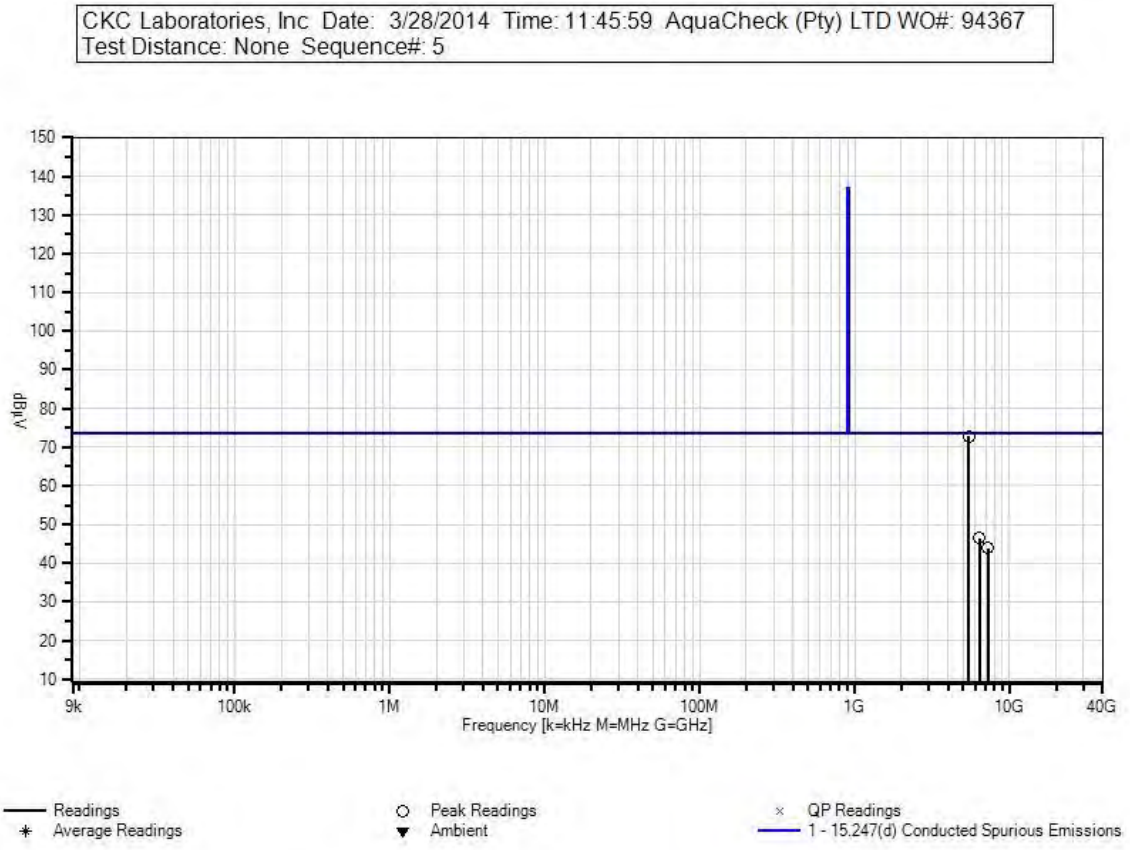
The EUT is set to continuously transmit.

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Middle Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5464.809M	61.0	+10.1	+1.6			+0.0	72.7	73.5	-0.8	None
2	6373.943M	34.6	+10.0	+1.8			+0.0	46.4	73.5	-27.1	None
3	7286.989M	32.0	+10.0	+1.9			+0.0	43.9	73.5	-29.6	None



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) Conducted Spurious Emissions**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Spurious Emission** Time: 9:38:51 AM
Equipment: **Basic II Wireless Probe** Sequence#: 3
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Conducted Spurious Emission
Frequency Range: 9kHz to 10000MHz

RF output power =10mW and attenuator " 1"
RBW = 100kHz
VBW= 300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

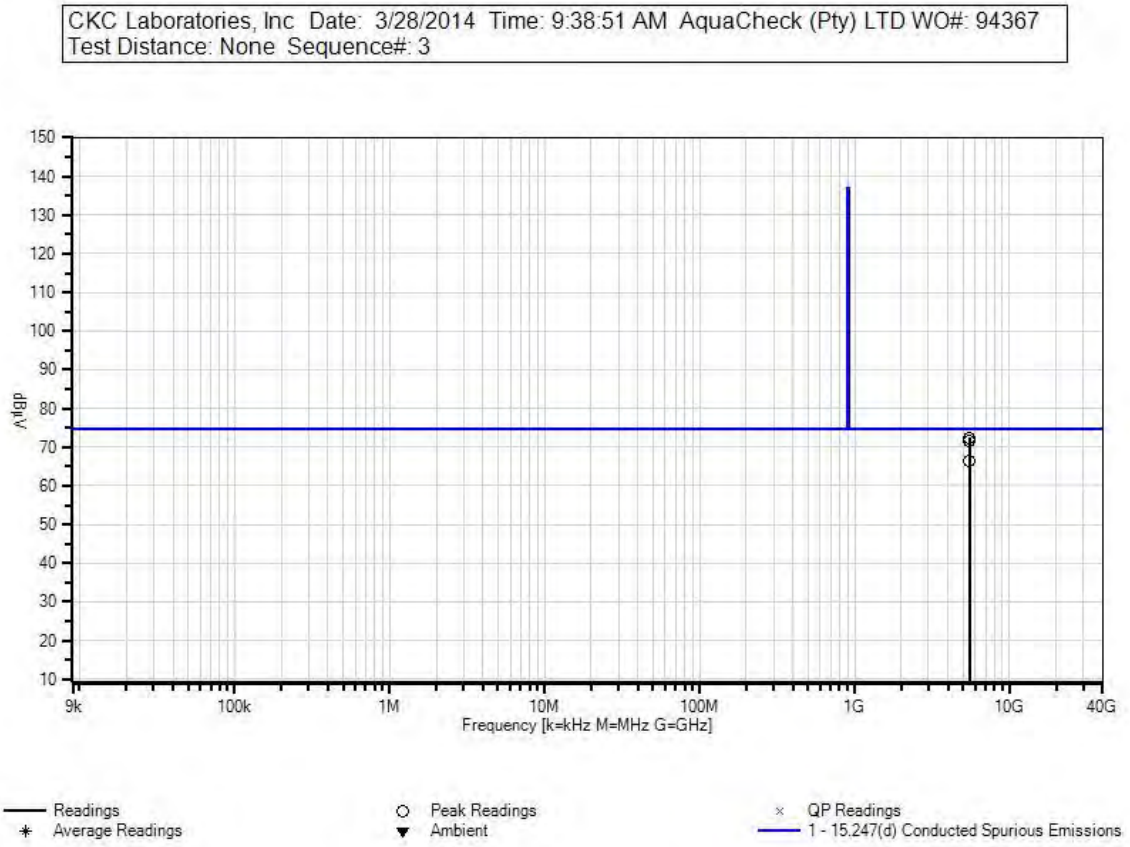
The EUT is set to continuously transmit.

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
High Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5510.976M	60.8	+10.0	+1.6			+0.0	72.4	74.8	-2.4	None
2	5513.979M	60.1	+10.0	+1.6			+0.0	71.7	74.8	-3.1	None
3	5513.378M	54.8	+10.0	+1.6			+0.0	66.4	74.8	-8.4	None



Test Setup Photo(s)

Test Setup

Test Setup - Close View

15.247(d) Field Strength of Radiated Spurious Emissions and Band Edge

The Reference level measurement for Emission is non restricted frequency bands were made using the methods set out in KDB "558704 D01 DTS Meas. Guidance v03r01", Section 11 Emissions in non-restricted frequency band
Note: The Reference Level is the limit line for Radiated Spurious Emission and Conducted Spurious Emission. Choose the worst reference level for the limit line for Radiated Emission only.

Reference level measurement in 100kHz Table					
Channel	Power Level (dBm)	Power Level (dBuV)	Reference level for Conducted (dBuV)	Power Level (dBuV/m)	Reference level for Radiated (dBuV/m)
LO	-14.9	92.1	72.1	80.3	60.3
MID	-13.5	93.5	73.5	81.7	61.7
HI	-12.2	94.8	74.8	83.1	63.1

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 13:44:17
Equipment: **Basic II Wireless Probe** Sequence#: 46
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 9kHz to 30MHz

RF output power =10mW and attenuator " 1"

Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band

RBW=100kHz, VBW=300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Low Channel
NO EMISSION HAS BEEN FOUND

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/2/2014
Test Type: **Radiated Scan** Time: 09:42:13
Equipment: **Basic II Wireless Probe** Sequence#: 8
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
900MHz Band Antenna	SkyWare Antennas	16-1003-A	None
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 30MHz to 1000MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10
Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

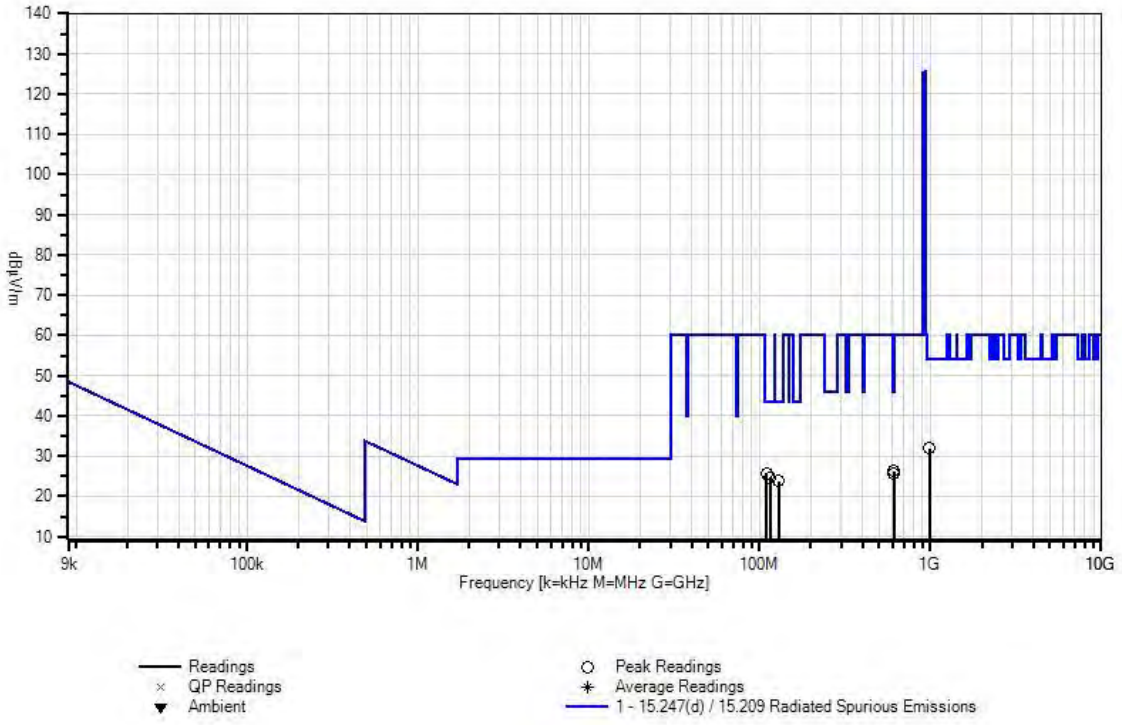
The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit
900MHz Band Antenna = 5.25dBi gain
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power
Low Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	110.363M	40.2	-27.0 +0.3	+10.9	+1.0	+0.2	+0.0	25.6	43.5	-17.9	Vert
2	115.528M	38.7	-26.9 +0.3	+11.3	+1.0	+0.3	+0.0	24.7	43.5	-18.8	Vert
3	129.942M	37.6	-27.0 +0.3	+11.3	+1.1	+0.5	+0.0	23.8	43.5	-19.7	Vert
4	611.864M	29.2	-26.9 +0.7	+19.5	+2.7	+1.0	+0.0	26.2	46.0	-19.8	Horiz
5	612.344M	28.6	-26.9 +0.7	+19.5	+2.7	+1.0	+0.0	25.6	46.0	-20.4	Horiz
6	990.734M	28.9	-27.3 +1.0	+24.5	+3.6	+1.3	+0.0	32.0	54.0	-22.0	Horiz

CKC Laboratories, Inc Date: 4/2/2014 Time: 09:42:13 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 8



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 10:28:49
Equipment: **Basic II Wireless Probe** Sequence#: 35
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T2	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T3	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T4	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T6	AN03172	High Pass Filter	HM1155-11SS	1/15/2014	1/15/2016
T7	ANDuty Cycle Correct Factor	<-Select Sub Type->		5/29/2013	5/29/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 10000MHz

RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10
Transmit Frequency Range =902 to 928MHz
Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

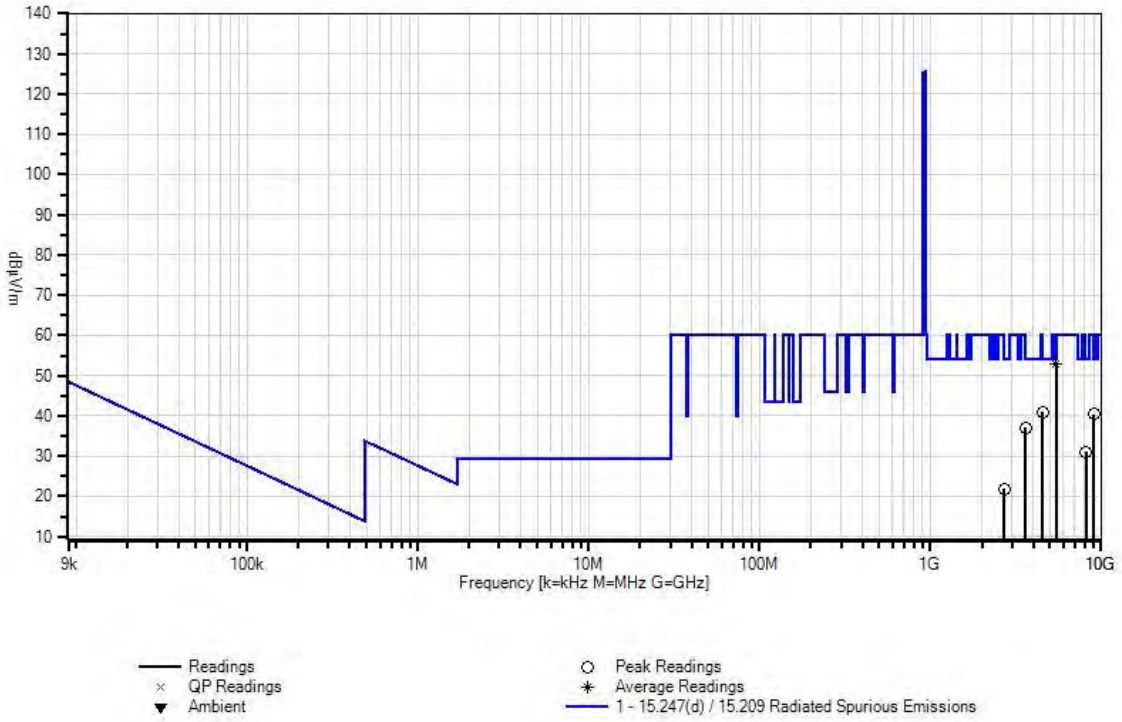
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Low Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7						
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5414.410M	87.2	-56.8	+34.7	+1.8	+4.0	+0.0	52.9	54.0	-1.1	Horiz
	Ave		+1.6	+0.1	-19.7						
^	5414.410M	87.4	-56.8	+34.7	+1.8	+4.0	+0.0	53.1	54.0	-0.9	Horiz
			+1.6	+0.1	-19.7						
3	4513.510M	80.3	-59.2	+32.5	+1.6	+3.7	+0.0	41.0	54.0	-13.0	Vert
			+1.6	+0.2	-19.7						
4	9027.840M	68.0	-56.7	+38.2	+2.3	+6.0	+0.0	40.5	54.0	-13.5	Vert
			+2.3	+0.1	-19.7						
5	3611.609M	79.1	-59.7	+31.4	+1.4	+3.1	+0.0	37.0	54.0	-17.0	Vert
			+1.3	+0.1	-19.7						
6	8122.115M	60.9	-57.4	+37.0	+2.2	+5.5	+0.0	31.0	54.0	-23.0	Horiz
			+2.4	+0.1	-19.7						
7	2707.706M	65.7	-59.0	+29.3	+1.2	+2.8	+0.0	21.9	54.0	-32.1	Horiz
			+1.4	+0.2	-19.7						

CKC Laboratories, Inc Date: 4/3/2014 Time: 10:28:49 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 35



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 13:45:13
Equipment: **Basic II Wireless Probe** Sequence#: 47
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 9kHz to 30MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Middle Channel
NO EMISSION HAS BEEN FOUND

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/2/2014
Test Type: **Radiated Scan** Time: 10:17:42
Equipment: **Basic II Wireless Probe** Sequence#: 11
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
900MHz Band Antenna	SkyWare Antennas	16-1003-A	None
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 30MHz to 1000MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10
Transmit Frequency Range =902 to 928MHz

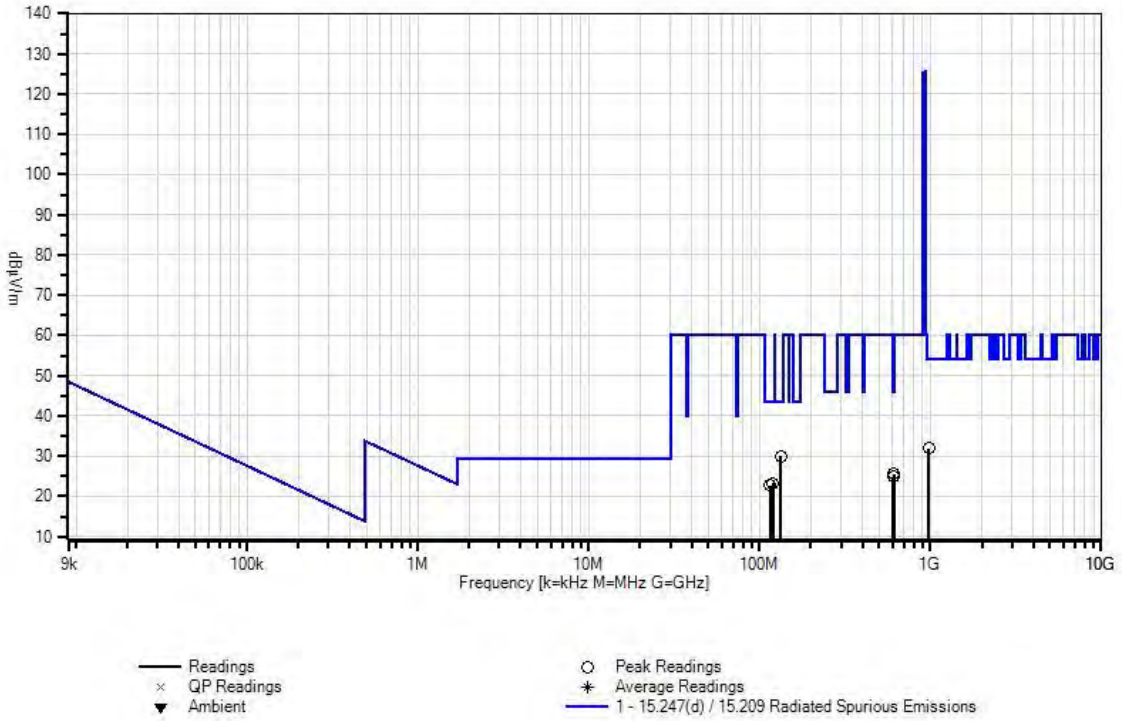
Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz
The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Middle Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	132.825M	43.7	-27.0 +0.3	+11.4	+1.1	+0.5	+0.0	30.0	43.5	-13.5	Vert
2	120.333M	37.3	-27.0 +0.3	+11.3	+1.1	+0.3	+0.0	23.3	43.5	-20.2	Vert
3	611.143M	28.7	-26.9 +0.7	+19.4	+2.7	+1.0	+0.0	25.6	46.0	-20.4	Horiz
4	115.047M	36.7	-26.9 +0.3	+11.3	+1.0	+0.3	+0.0	22.7	43.5	-20.8	Vert
5	608.020M	28.3	-26.9 +0.7	+19.1	+2.7	+1.0	+0.0	24.9	46.0	-21.1	Horiz
6	974.142M	29.0	-27.2 +0.9	+24.4	+3.6	+1.3	+0.0	32.0	54.0	-22.0	Horiz

CKC Laboratories, Inc Date: 4/2/2014 Time: 10:17:42 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 11



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 11:14:51
Equipment: **Basic II Wireless Probe** Sequence#: 38
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T2	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T3	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T4	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T6	AN03172	High Pass Filter	HM1155-11SS	1/15/2014	1/15/2016
T7	ANDuty Cycle Correct Factor	<-Select Sub Type->		5/29/2013	5/29/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 10000MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10
Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

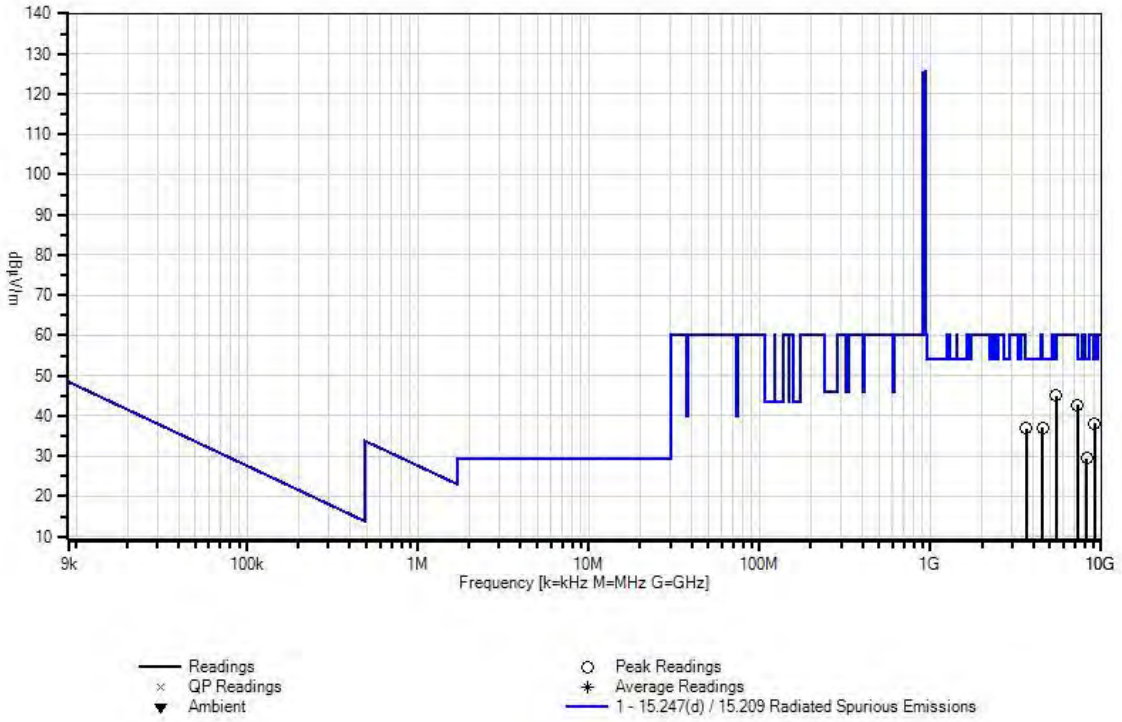
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
Middle Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	5446.442M	59.6	-56.8 +1.6	+34.7 +0.1	+1.8 +0.0	+4.0	+0.0	45.0	54.0	-9.0	Horiz
2	7286.280M	75.4	-59.2 +2.0	+36.5 +0.2	+2.1 -19.7	+5.4	+0.0	42.7	54.0	-11.3	Horiz
3	9103.232M	65.8	-56.7 +2.2	+38.2 +0.1	+2.3 -19.7	+6.0	+0.0	38.2	54.0	-15.8	Vert
4	4551.548M	76.3	-59.1 +1.6	+32.5 +0.2	+1.6 -19.7	+3.7	+0.0	37.1	54.0	-16.9	Vert
5	3641.639M	78.3	-59.4 +1.4	+31.6 +0.1	+1.4 -19.7	+3.2	+0.0	36.9	54.0	-17.1	Vert
6	8196.189M	58.9	-57.2 +2.5	+37.0 +0.1	+2.2 -19.7	+5.6	+0.0	29.4	54.0	-24.6	Horiz

CKC Laboratories, Inc Date: 4/3/2014 Time: 11:14:51 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 38



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 13:30:10
Equipment: **Basic II Wireless Probe** Sequence#: 45
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 9kHz to 30MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band

RBW=100kHz, VBW=300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz
Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
High Channel
NO EMISSION HAS BEEN FOUND

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/2/2014
Test Type: **Radiated Scan** Time: 10:58:36
Equipment: **Basic II Wireless Probe** Sequence#: 14
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
900MHz Band Antenna	SkyWare Antennas	16-1003-A	None
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 30MHz to 1000MHz
RF output power =10mW and attenuator " 1"
Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band
RBW=100kHz, VBW=300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.

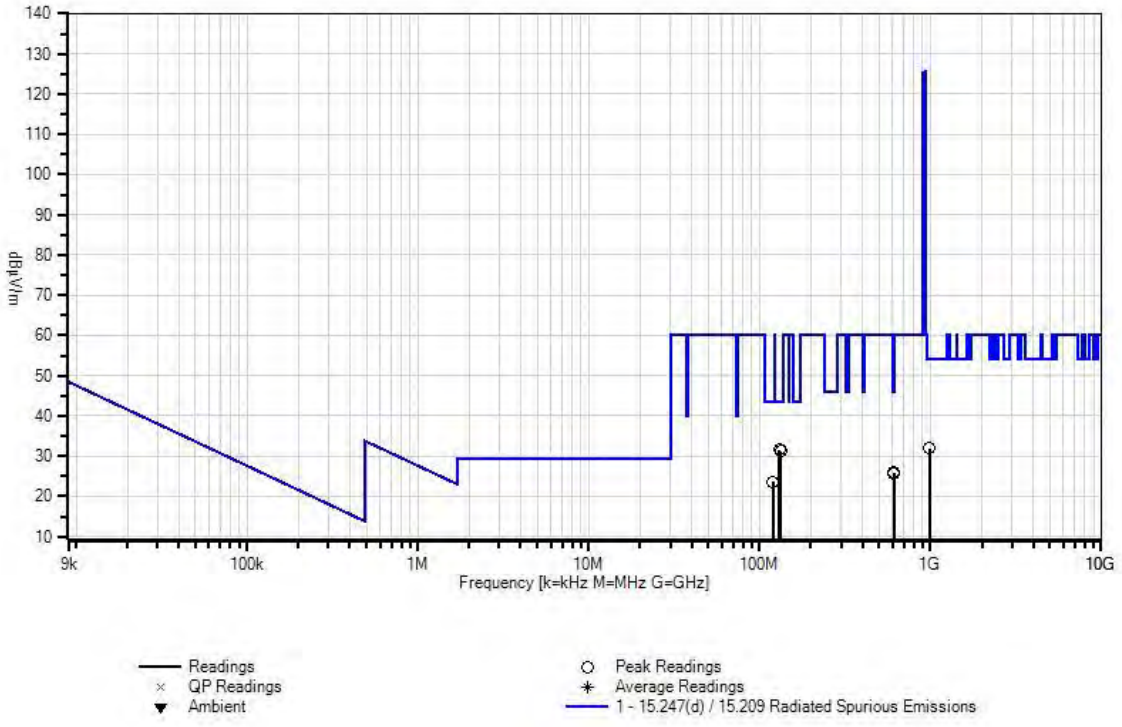
900MHz Band Antenna = 5.25dBi gain
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
High Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	130.062M	45.4	-27.0 +0.3	+11.3	+1.1	+0.5	+0.0	31.6	43.5	-11.9	Vert
2	133.186M	45.0	-27.0 +0.3	+11.4	+1.1	+0.5	+0.0	31.3	43.5	-12.2	Vert
3	120.213M	37.6	-27.0 +0.3	+11.3	+1.1	+0.3	+0.0	23.6	43.5	-19.9	Vert
4	613.185M	28.8	-26.9 +0.7	+19.6	+2.7	+1.0	+0.0	25.9	46.0	-20.1	Horiz
5	610.062M	28.7	-26.9 +0.7	+19.3	+2.7	+1.0	+0.0	25.5	46.0	-20.5	Horiz
6	982.782M	29.0	-27.2 +0.9	+24.3	+3.6	+1.3	+0.0	31.9	54.0	-22.1	Horiz

CKC Laboratories, Inc Date: 4/2/2014 Time: 10:58:36 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 14



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **94367** Date: 4/3/2014
Test Type: **Radiated Scan** Time: 11:56:05
Equipment: **Basic II Wireless Probe** Sequence#: 42
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T2	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T3	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T4	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T6	AN03172	High Pass Filter	HM1155-11SS	1/15/2014	1/15/2016
T7	ANDuty Cycle Correct Factor	<-Select Sub Type->		5/29/2013	5/29/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None
900MHz Band Antenna	SkyWave Antennas	16-1003-A	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Radiated Emission
Frequency Range: 1000MHz to 10000MHz

RF output power =10mW and attenuator " 1"

Resolution bandwidth for restricted band

9 kHz -150 kHz;RBW=200 Hz,VBW=200 Hz;
150 kHz-30 MHz;RBW=9 kHz,VBW=9 kHz;
30 MHz-1000 MHz;RBW=120 kHz,VBW=120 kHz,
1000 MHz-10,000 MHz;RBW=1 MHz,VBW=1 MHz.

Resolution bandwidth for non-restricted band

RBW=100kHz, VBW=300kHz

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is placed on 80cm Styrofoam table. It is powered by 3.6VDC internal Batteries Lithium Package and set continuously transmit.
900MHz Band Antenna = 5.25dBi gain

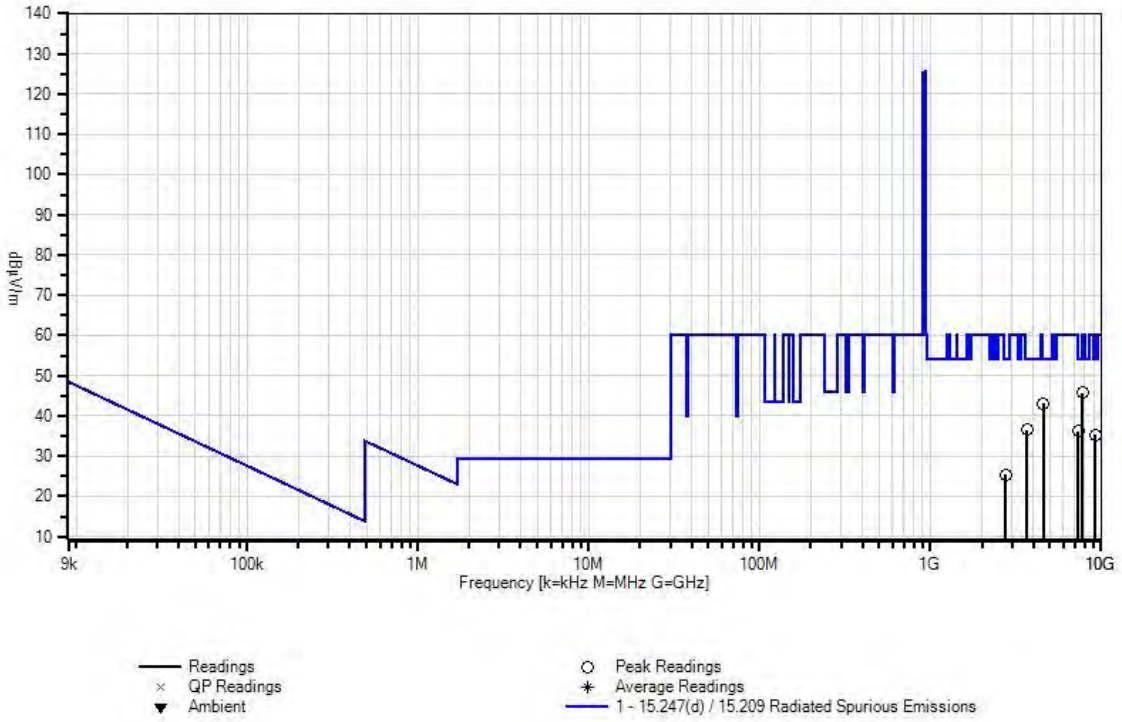
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.
High Channel

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	7744.738M	58.3	-58.9 +2.1	+36.6 +0.1	+2.1 +0.0	+5.5	+0.0	45.8	54.0	-8.2	Horiz
2	4592.589M	81.9	-58.9 +1.6	+32.6 +0.2	+1.6 -19.7	+3.7	+0.0	43.0	54.0	-11.0	Vert
3	3674.672M	77.6	-59.3 +1.4	+31.8 +0.1	+1.4 -19.7	+3.2	+0.0	36.5	54.0	-17.5	Vert
4	7348.342M	69.0	-59.4 +2.0	+36.7 +0.1	+2.1 -19.7	+5.4	+0.0	36.2	54.0	-17.8	Horiz
5	9188.544M	63.1	-57.0 +2.2	+38.2 +0.1	+2.3 -19.7	+6.0	+0.0	35.2	54.0	-18.8	Vert
6	2756.755M	69.1	-58.9 +1.4	+29.2 +0.2	+1.3 -19.7	+2.8	+0.0	25.4	54.0	-28.6	Horiz

CKC Laboratories, Inc Date: 4/3/2014 Time: 11:56:05 AquaCheck (Pty) LTD WO#: 94367
Test Distance: 3 Meters Sequence#: 42



Band Edge

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer:	**AquaCheck (Pty) LTD**		
Specification:	**Band Edge**		
Work Order #:	**94367**	Date:	3/28/2014
Test Type:	**Conducted Power Measurement**	Time:	08:25:41
Equipment:	**Basic II Wireless Probe**	Sequence#:	1
Manufacturer:	AquaCheck (Pty) LTD	Tested By:	Hieu Song Nguyenpham
Model:	ACBPROBE_xM		
S/N:	21648		

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Band Edge Set up

RF output power =10mW and attenuator " 1"

Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

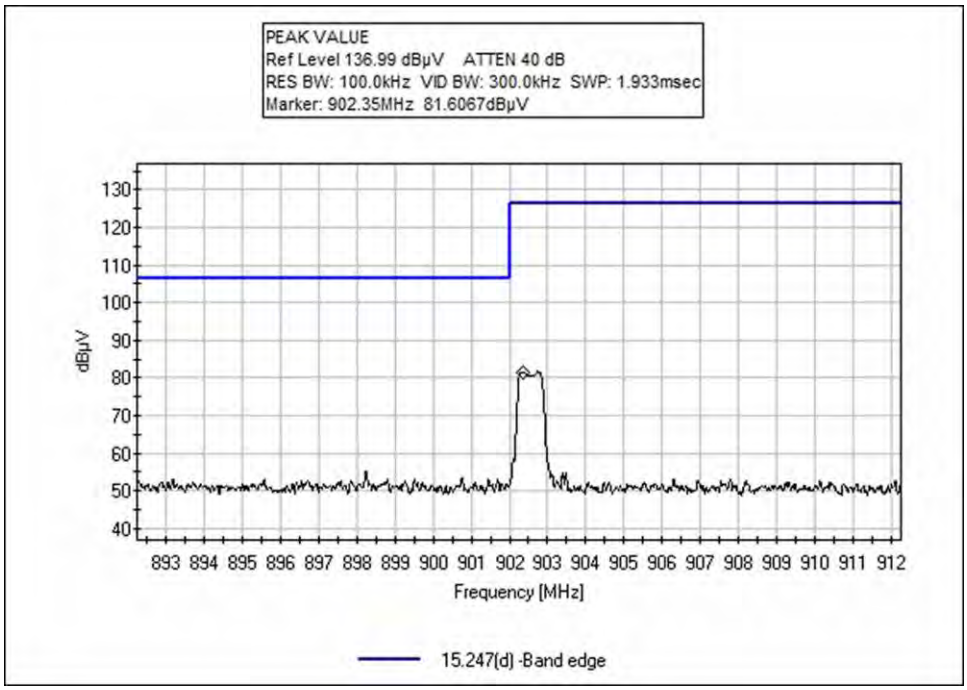
Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

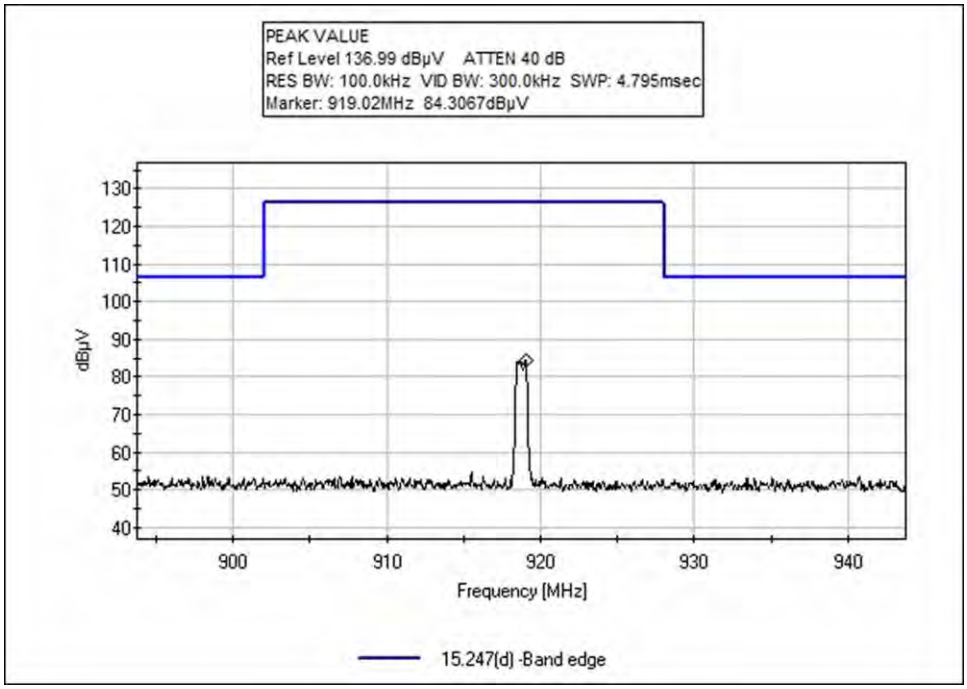
The EUT is set continuously transmit

Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power.

Test Plots - Bandedge

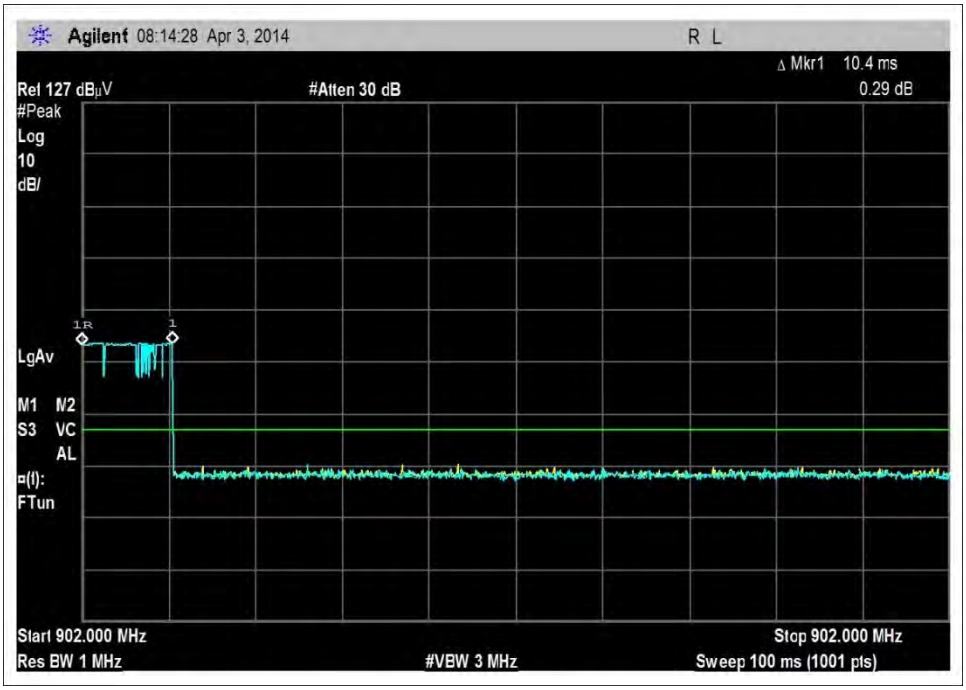


Low Channel



High Channel

Duty Cycle Factor



REAL TIME ANALYSIS, REFER TO ATTACHED SPECTRUM ANALYER PRINT OUTS.

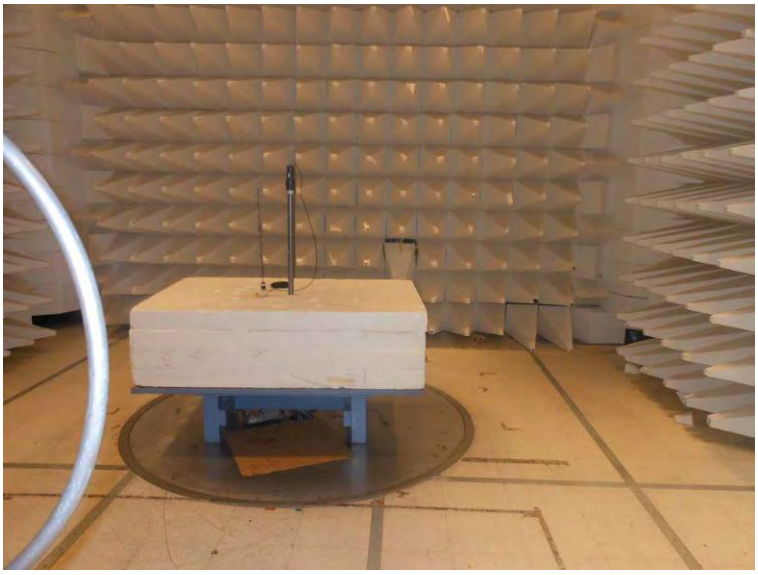
Description	Total Time	On Time
Total Transmission	100mSec.	10.4 mSec. in any 100 mSec.. Window.

FCC Rules 15.35(c)

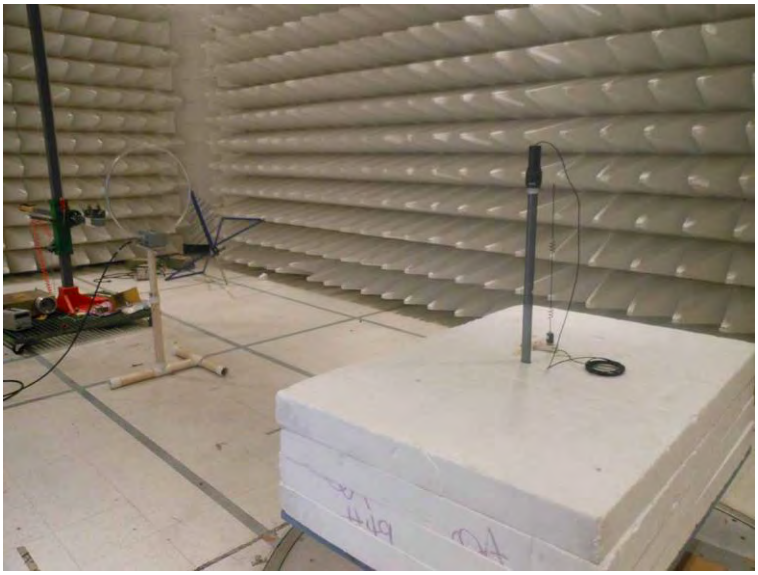
10.54 E-3 (on time) = 20 Log (0.104) = -19.659 dB (per FCC rules)
100 E-3 (window)

NOTE: The total on time per RF burst above is presented for the worst case

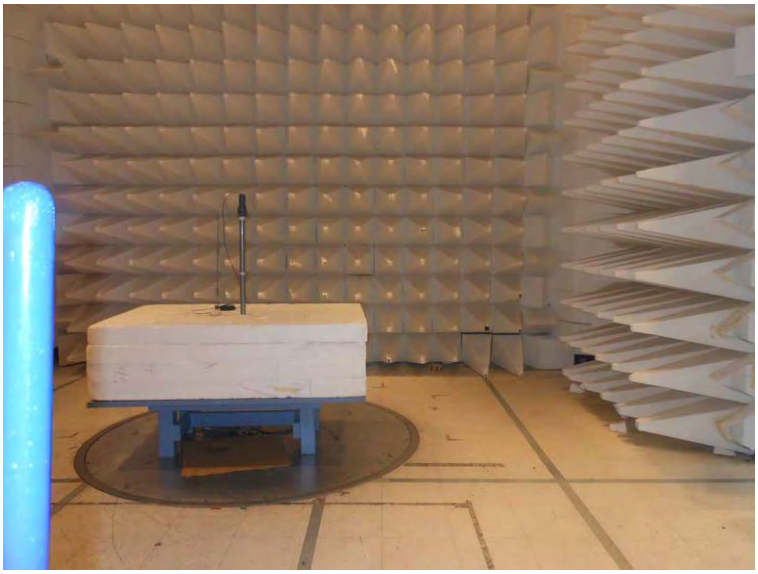
Test Setup Photo(s)



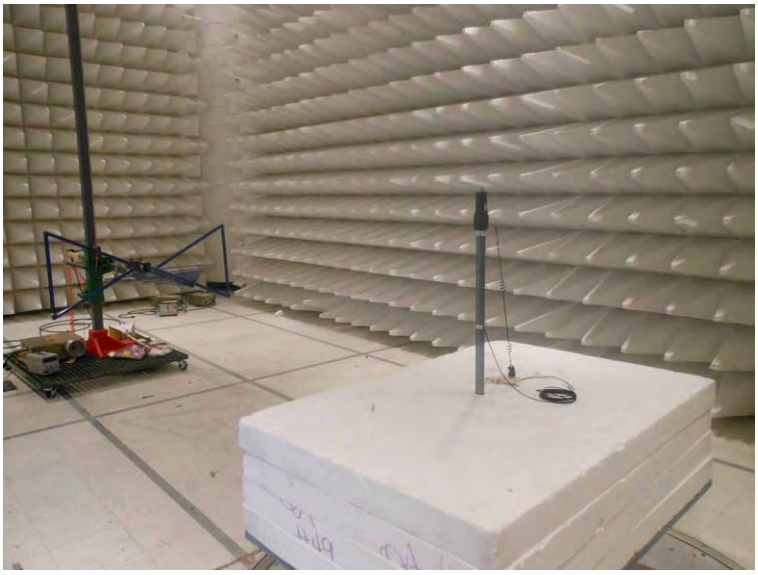
9kHz - 30MHz, 900MHz Band Antenna



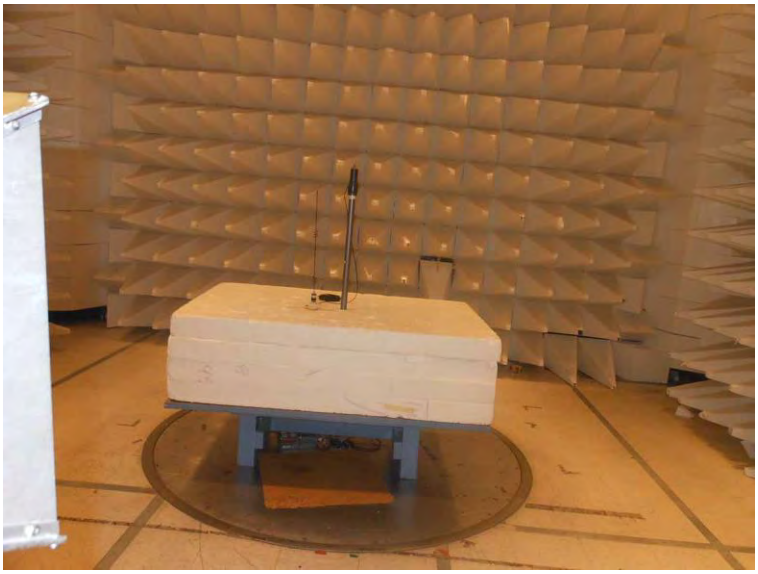
9kHz - 30MHz, 900MHz Band Antenna



30MHz - 1GHz, 900MHz Band Antenna

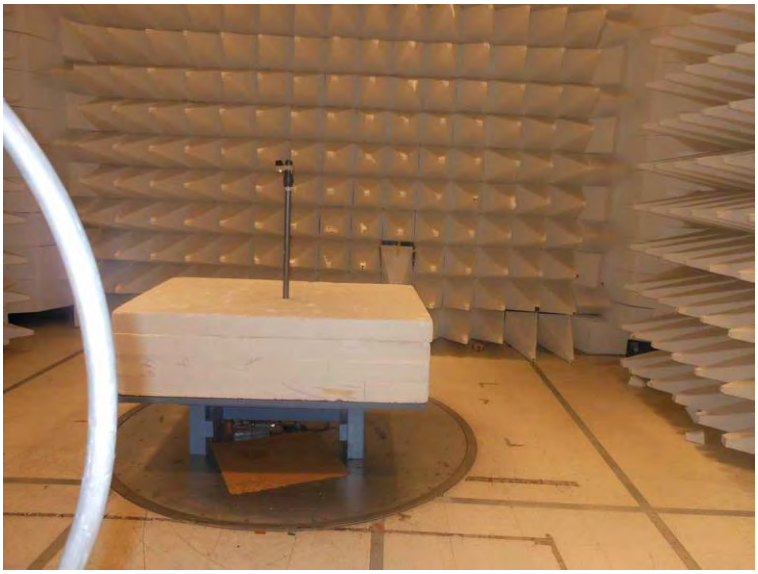


30MHz - 1GHz, 900MHz Band Antenna

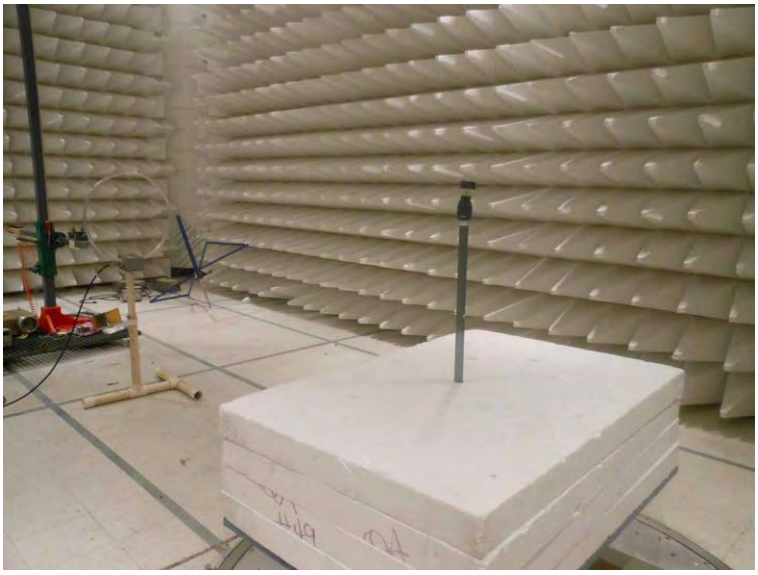


1GHz - 10GHz, 900MHz Band Antenna

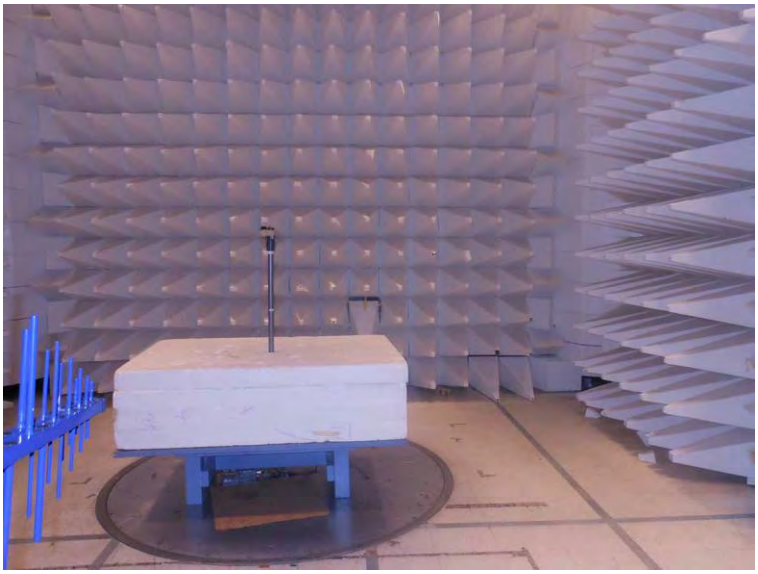
1GHz - 10GHz, 900MHz Band Antenna



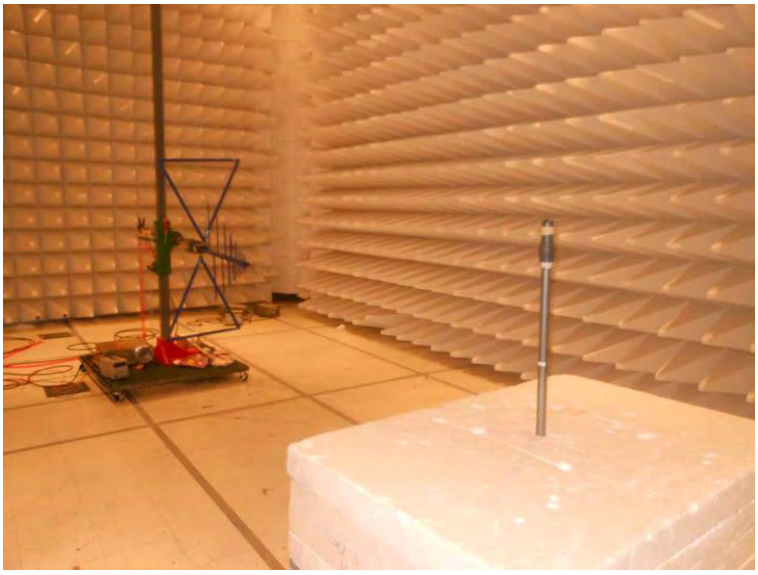
9kHz - 30MHz, GSM Wide Band Antenna



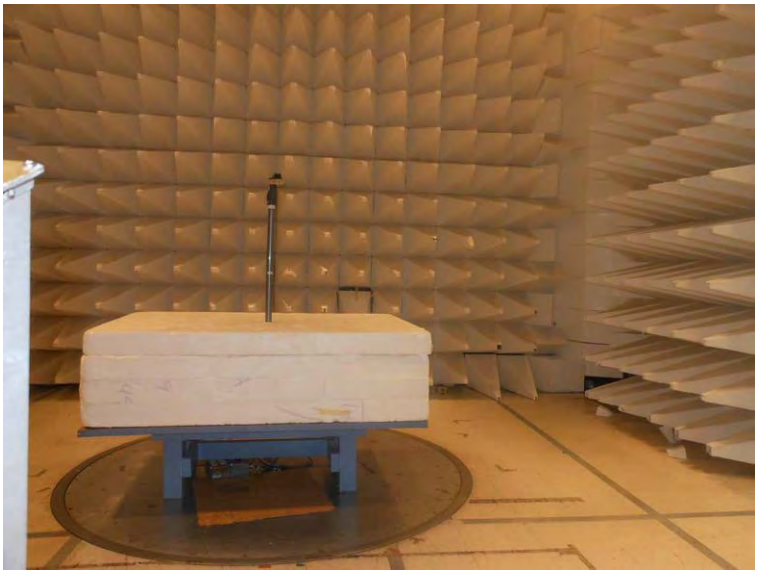
9kHz - 30MHz, GSM Wide Band Antenna



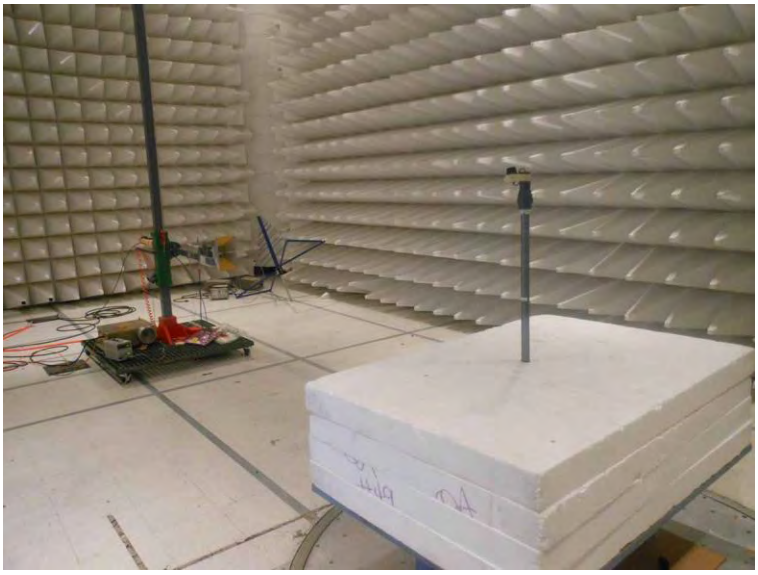
30MHz - 1GHz, GSM Wide Band Antenna



30MHz - 1GHz, GSM Wide Band Antenna



1GHz - 10GHz, GSM Wide Band Antenna



1GHz - 10GHz, GSM Wide Band Antenna

Test Setup, Band Edge

Test Setup – Close View

15. 247(e) Power Spectral Density

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **AquaCheck (Pty) LTD**
Specification: **15.247(e) Peak Power Spectral Density (902-928 MHz DTS)**
Work Order #: **94367** Date: 3/28/2014
Test Type: **Conducted Power Measurement** Time: 10:38:43
Equipment: **Basic II Wireless Probe** Sequence#: 2
Manufacturer: AquaCheck (Pty) LTD Tested By: Hieu Song Nguyenpham
Model: ACBPROBE_xM
S/N: 21648

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T2	ANP06138	Cable	32022-29094K-29094K-72TC	8/2/2013	8/2/2015
	AN03471	RF Characteristics Analyzer	E4440A	12/19/2013	12/19/2015

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Basic II Wireless Probe*	AquaCheck (Pty) LTD	ACBPROBE_xM	21648
Batteries Lithium Pack	QC	SB6044	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Power Spectral Density

RF output power =10mW and attenuator " 1"
RBW = 100kHz
VBW= 300kHz
Software Used: AC Utility Program
Firmware: AC Probe Basic-II-W, FirmwareV24, Boot V10

Transmit Frequency Range =902 to 928MHz

Low channel: 902.5MHz
Middle channel: 910.5MHz
High Channel: 919MHz

The EUT is set continuously transmit
Note: Attenuator is from 0 to 27. For each step of the attenuator reduces 0.3dB for RF output power

Ext Attn: 0 dB

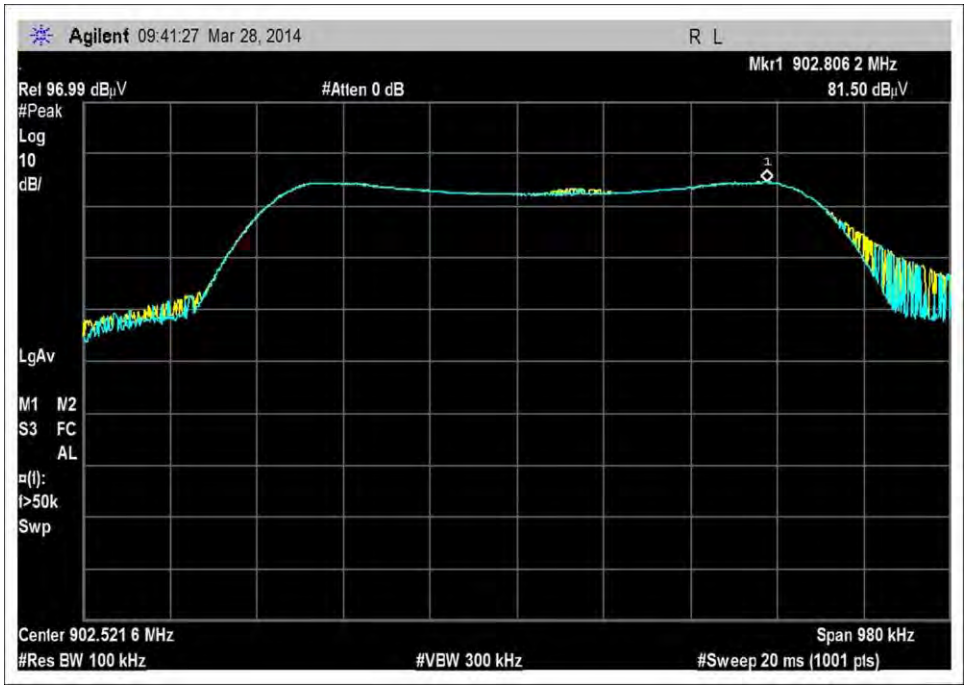
Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	918.993M	84.2	+9.9	+0.7			+0.0	94.8	115.0 High channel	-20.2	None
2	910.798M	82.9	+9.9	+0.7			+0.0	93.5	115.0 Middle Channel	-21.5	None
3	902.806M	81.5	+9.9	+0.7			+0.0	92.1	115.0 Low Channel	-22.9	None

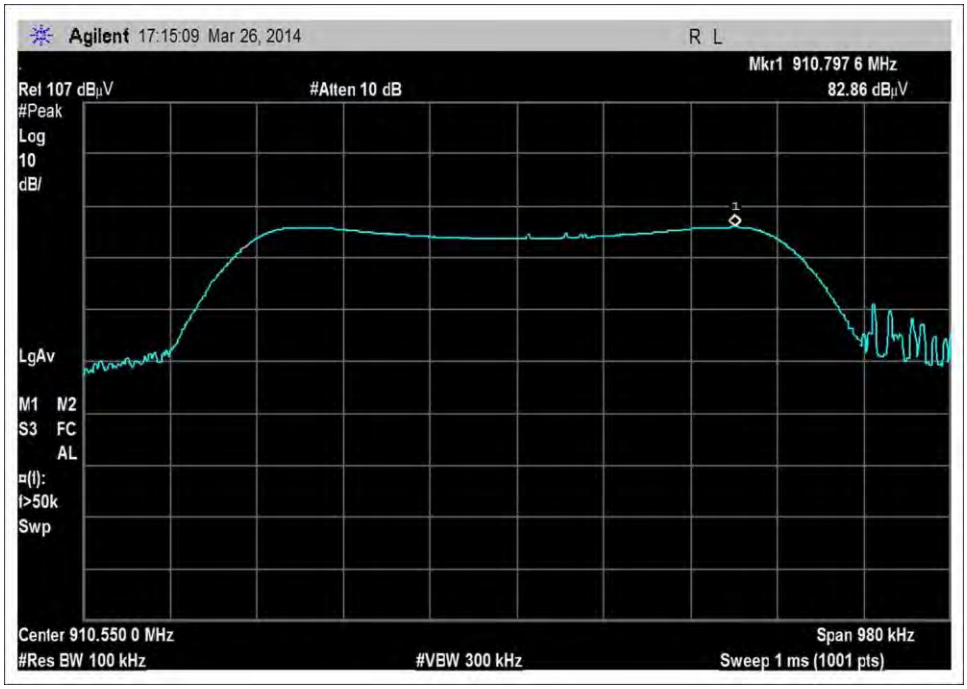
Convert equivalent electric field strength to the resultant power level

Frequency (MHz)	Measured Power in dBm	Power Limit in dBm	Pass/Fail
Low Channel	-14.9	8.00	Pass
Middle Channel	-13.5	8.00	Pass
High Channel	-12.2	8.00	Pass

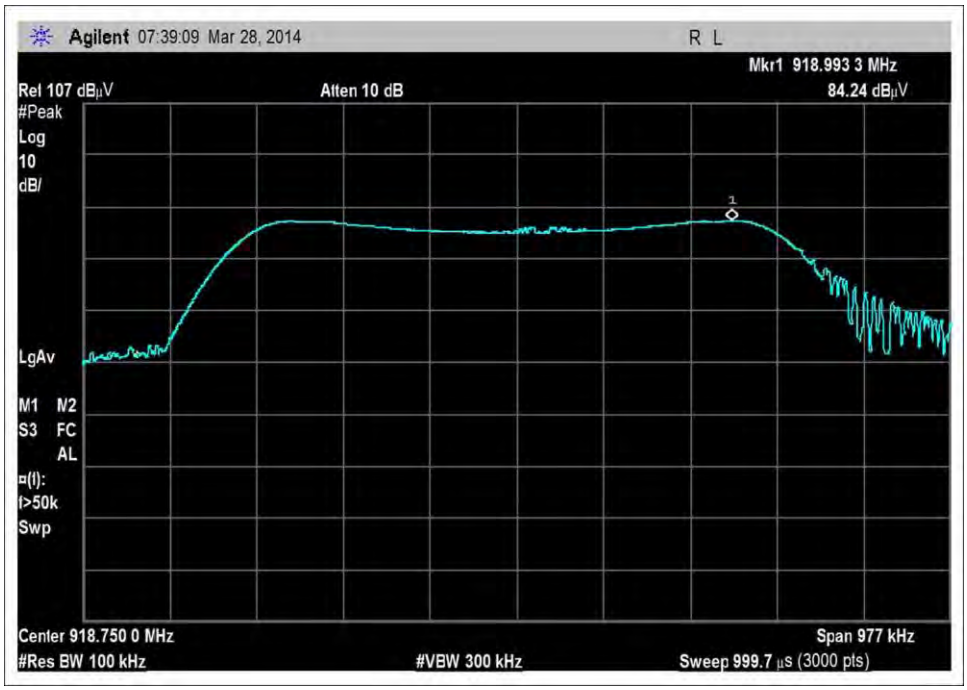
Test Data



Low Channel



Middle Channel



High Channel

Test Setup Photo(s)

Test Setup

Test Setup - Close View

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.