

FCC TEST REPORT  
for  
Dynamic Model Design Limited

Telemeter  
Model No.: V1

Prepared for : Dynamic Model Design Limited  
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Report Number : 200909660F  
Date of Test : Sept. 17~Oct. 15, 2009  
Date of Report : Oct. 16, 2009

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 APPENDIX I (Photos of EUT) (2 Pages)	

## TEST REPORT

Applicant : Dynamic Model Design Limited  
EUT : Telemeter  
Model No. : V1  
Serial No. : N/A  
Rating : DC 6~9V via AC/DC Adapter  
Trade Mark : N/A

## Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.209&15.247: 2007


The device described above is tested by Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test : Sept. 17~Oct. 15, 2009

Prepared by :   
(Engineer)

Reviewer :   
(Project Manager)

Approved & Authorized Signer :   
(Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT : Telemeter

Model Number : V1

Test Power Supply : AC 120V, 60Hz

Frequency : 2402 ~ 2480 MHz

Antenna Gain : 2dBi

Applicant : Dynamic Model Design Limited

Address : Rm 1616, Goldfield Ind. Ctr.1 Sui Wu Road, Fotan NT, HONG KONG

Date of receiver : Sept. 15, 2009

Date of Test : Sept. 17~Oct. 15, 2009

## 1.2. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### **FCC-Registration No.: 607248**

Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 607248, November 12, 2008.

### **IC-Registration No.: 8058A**

Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A, January 26, 2009.

### **CNAS - LAB Code: L3503**

Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

### **Test Location**

All Emissions tests were performed

Anbotek Compliance Laboratory Limited. at 2F, Langfeng Building, Kefa Road North, Hi-tech Industrial Park, Nanshan District, Shenzhen 518057, China

## 1.3.Measurement Uncertainty

Radiation Uncertainty :  $U_r = \pm 4.26\text{dB}$

Conduction Uncertainty :  $U_c = \pm 2.66\text{dB}$

## 2. MEASURING DEVICE AND TEST EQUIPMENT

Equipment	Manufacturer	Model #	Serial #	Data of Cal.	Due Data
EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 12, 2008	Nov. 12, 2009
EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Nov. 12, 2008	Nov. 12, 2009
EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	Sep.22, 2009	Sep.21, 2010
Spectrum Analyzer	Agilent	E7405A	MY45114970	Jun.21, 2009	Jun.20, 2010
Signal Generator	IFR	2032	203002/100	Nov. 12, 2008	Nov. 12, 2009
Signal Generator	IFR	2023A	202304/060	Nov. 12, 2008	Nov. 12, 2009
AC Power Source	SOPH POWER	PAG-1050	630250	Nov. 29, 2008	Nov. 29, 2009
Absorbing Clamp	FCC	F-102-23MM	08166	Nov. 12, 2008	Nov. 12, 2009
Power Meter	Rohde & Schwarz	NRVD	101287	Jul.19, 2008	Jul.18, 2010
Coaxial Cable	ANBOTEK	N/A	N/A	Nov. 05, 2008	Nov. 05, 2009
Coaxial Cable	ANBOTEK	N/A	N/A	Nov. 05, 2008	Nov. 05, 2009
Coaxial Cable	ANBOTEK	N/A	N/A	Nov. 05, 2008	Nov. 05, 2009
Universal radio Communication tester	Rohde & Schwarz	CMU200	101724	Sep.08, 2008	Sep.07, 2010
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
Bilog Antenna	Schwarzbeck	VULB9163	100015	Nov. 12, 2008	Nov. 12, 2009
BiConilog Antenna	ETS-LINDGREN	3142C	00042673	Mar.03, 2009	Mar.02, 2010
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00035926	Dec.30, 2007	Dec.29, 2009
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00041545	Dec.30, 2007	Dec.29, 2009
Pre-amplifier	CD	PAM0203	804203	Jun.21, 2009	Jun.20, 2010
RF Switching Unit	Compliance Direction	RSU-M2	38303	N/A	N/A
Thermo-/Hygrometer	N/A	TH01	N/A	May.03, 2008	Mar.03, 2010

### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC Part 15, Paragraph 15.207, 15.209&15.247

#### 3.1. Summary of Test Results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Test	PASS	Complies
FCC Part 15, Paragraph 15.247(b)(1)	Peak Output Power	PASS	Complies
FCC Part 15, Paragraph 15.247(a)(2)	6dB Bandwidth	PASS	Complies
FCC Part 15, Paragraph 15.247(c)	100kHz Bandwidth of Frequency Band Edges	PASS	Complies
FCC Part 15, Paragraph 15.209(a)(f)	Spurious Emission	PASS	Complies
FCC Part 15, Paragraph 15.247(a)(1)	Frequency Separation	-	N/A
FCC Part 15, Paragraph 15.247(a)(1)(iii)	Number of Hopping Frequency	-	N/A
FCC Part 15, Paragraph 15.247(a)(1)(iii)	Time of Occupancy	-	N/A
FCC Part 15, Paragraph 15.247(c)	Peak Power Density	PASS	Complies

#### 3.2. Description of Test Modes

The EUT has been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel 1(2402MHz), Channel 40(2441MHz) and Channel 79(2480MHz) with worst case are chosen for the final testing.

## 4. Conducted Power Line Test

### 4.1 Test Equipment

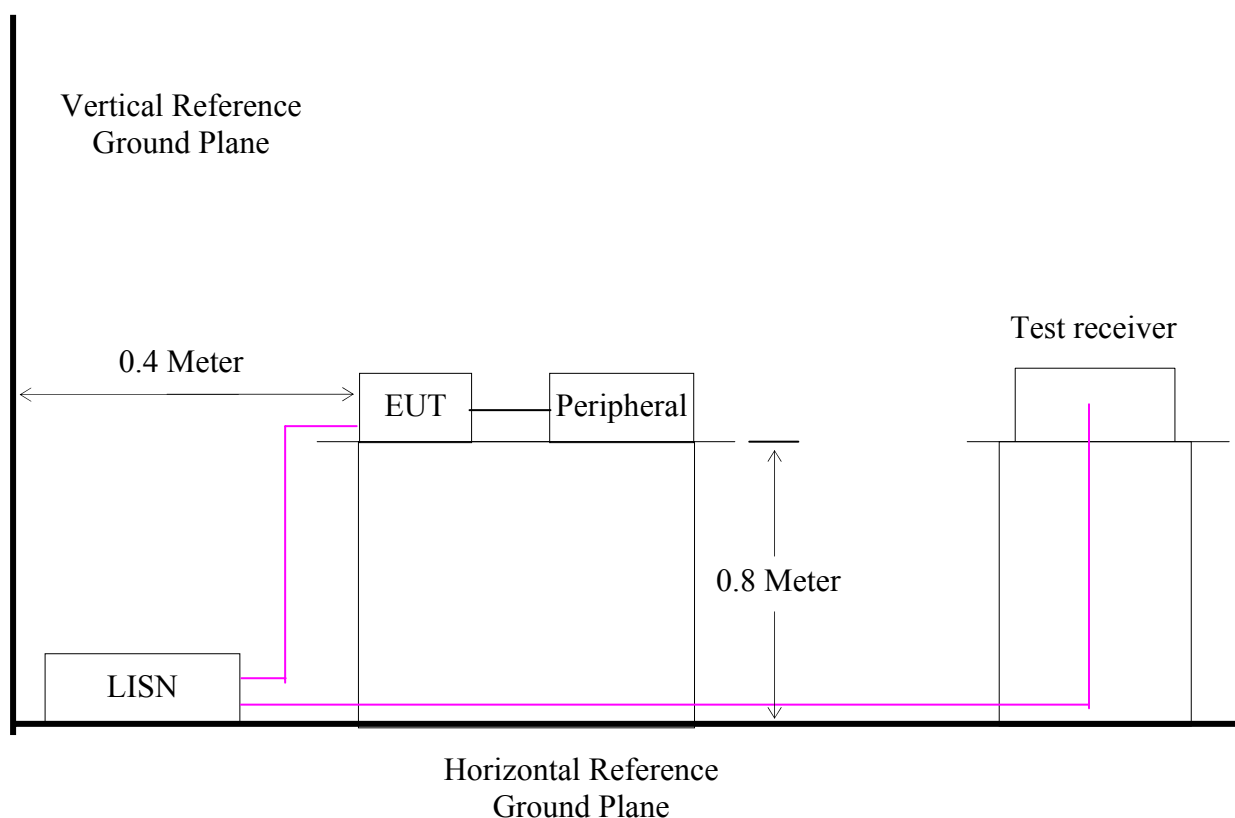
Please refer to Section 2 this report

### 4.2 Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm/50 $\mu$ H coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50 $\mu$ H coupling impedance with 50ohm termination.

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2009 on conducted measurement. Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 4.3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.



## 4.4 Configuration of the EUT

The EUT was configured according to ANSI C63.4-2009. EUT was used AC source. The operation frequency is from 2402MHz~2480MHz. Enable the signal transmitted from the EUT. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Note:

- 1) Operating Modes: Each of lowest, middle and highest channel frequencies transmits continuously for emissions measurements. The EUT operates in normal DSSS.
- 2) Special Test Software & Hardware: Special firmware and hardware provided by the Applicant are installed to allow the EUT to operate in DSSS at each channel frequency continuously. For example, the transmitter will be operated at each of lowest, middle and highest frequencies individually continuously during testing.
- 3) Transmitter Test Antenna: The EUT is tested with the antenna fitted in a manner typical of normal intended use as an integral / non-integral antenna equipment as describe with the test results.
- 4) Frequency(ies) Tested: 2402MHz, 2441MHz and 2480MHz were pre-tested, The worst case one, was chosen for conducted emission test.
- 5) Above 1GHz, the 2402MHz, 2441MHz and 2480MHz were tested individually.
- 6) Normal Test Modulation: DSSS
- 7) Modulating Signal Source: External

\* Associated Antenna Descriptions: The antenna used in this product is embedded antenna

## 4.5 EUT Operating Condition

Operating condition is according to ANSI C63.4 – 2009

4.5.1 Setup the EUT and simulator as shown as Section 4.3.

4.5.2 Turn on the power of all equipment.

4.5.3 Let the EUT work in test mode (On) and measure it.

## 4.6 Conducted Power Line Emission Limits

FCC Part 15 Paragraph 15.207		
Frequency Range	Limits (dBμV)	
	Class A QP/AV	Class B QP/AV
0.15 ~ 0.50	79/66	66 ~ 56 / 56 ~ 46*
0.50 ~ 5.00	73/60	56/46
5.00 ~ 30.00	73/60	60/50

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. In the above table, the tighter limit applies at the band edges.

## 4.7 Conducted Power Line Test Result

Please refer to the following pages.

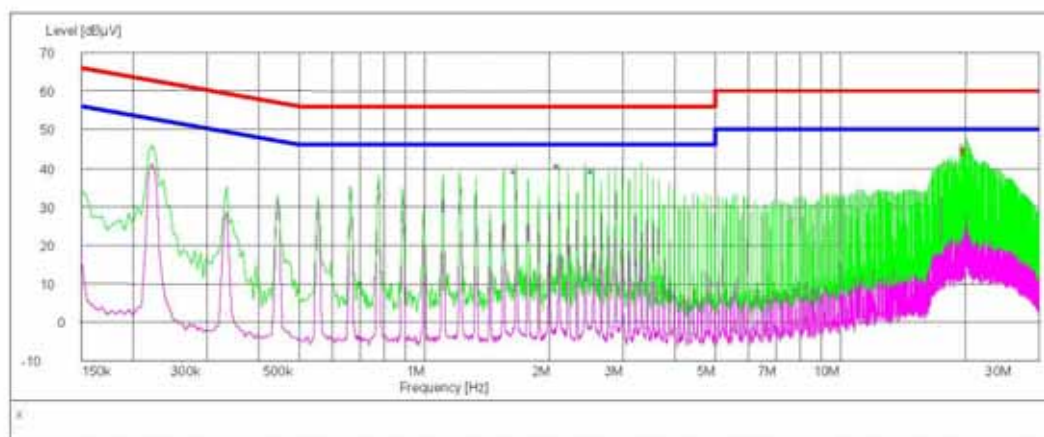
Anbotek Compliance Laboratory Limited

Voltage Mains: FCC PART15 CLASSB

EUT: Telemeter M/N: V1  
Applicant: Dynamic Model Design Limited  
Operating Condition: ON  
Test Site: 1#  
Operator: Jacky  
Test Specification: AC 120V, 60Hz  
Comment: L  
Start of Test: 09/27/2009 / 11:00:37AM

SCAN TABLE: "Voltage (9K-30M) FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "AT0909600101\_fin"

09/27/2009 11:04AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
19.923000	44.50	11.7	60	15.5	QP	L1	GND
20.031000	45.70	11.7	60	14.3	QP	L1	GND
20.143500	44.50	11.6	60	15.5	QP	L1	GND

MEASUREMENT RESULT: "AT0909600101\_fin2"

09/27/2009 11:04AM

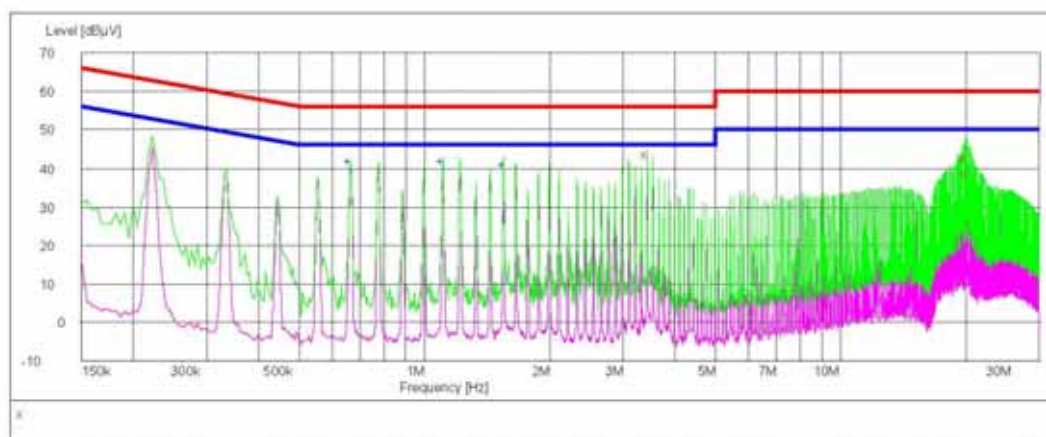
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
1.662000	39.30	9.9	46	6.7	AV	L1	GND
2.103000	40.80	9.8	46	5.2	AV	L1	GND
2.544000	39.40	9.8	46	6.6	AV	L1	GND

**Anbotek Compliance Laboratory Limited****Voltage Mains: FCC PART15 CLASSB**

EUT: Telemeter M/N: V1  
Applicant: Dynamic Model Design Limited  
Operating Condition: ON  
Test Site: 1#  
Operator: Jacky  
Test Specification: AC 120V, 60Hz  
Comment: N  
Start of Test: 09/27/2009 / 11:10:37AM

**SCAN TABLE: "Voltage (9K-30M) FIN"**

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "AT0909600102\_fin"**

09/27/2009 11:43AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
3.426000	43.80	9.8	56	12.2	QP	N	GND
20.013000	43.00	11.7	60	17.0	QP	N	GND
20.125500	38.90	11.6	60	21.1	QP	N	GND

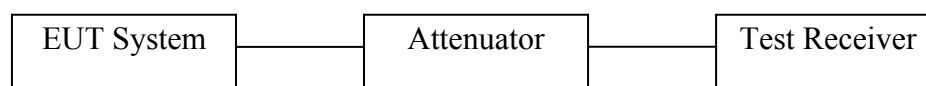
**MEASUREMENT RESULT: "AT0909600102\_fin2"**

09/27/2009 11:43AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.663000	42.10	9.9	46	3.9	AV	N	GND
1.104000	42.10	9.9	46	3.9	AV	N	GND
1.549500	41.30	9.9	46	4.7	AV	N	GND

## 5. FCC Part 15.247 Requirements for DSSS Systems

### 5.1 Test Setup



### 5.2 6dB Bandwidth

#### a. Limit

For the direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

#### b. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = RBW, Span = 30MHz, Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

#### c. Test Setup

See 4.1

#### d. Test Results

Pass

#### e. Test Data

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Results
Low	2402	0.536	>500	Pass
Mid	2441	0.540		Pass
High	2480	0.516		Pass

### 5.3 Peak Power

#### a. Limit

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antenna of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### b. Test Procedure

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

#### c. Test Setup

See 4.1

#### d. Test Results

Pass

**e. Test Data**

Channel	Frequency (MHz)	Output Power (dBm)	Factor (dB)	Output Power (dBm)	Limit (dBm)	Result
Low	2402	-8.35	2.00	-6.35	30	Pass
Mid	2441	-6.61	2.00	-4.61		Pass
High	2480	-4.01	2.00	-2.01		Pass

## 5.4 Band Edges Measurement

**a. Limit**

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

**b. Test Procedure**

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

**c. Test Setup**

See 4.1

**d. Test Results**

Pass

## 5.5 Peak Power Spectral Density

**a. Limit**

1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

**b. Test Procedure**

1. Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

**c. Test Setup**

See 4.1

**d. Test Results**

Pass

**e. Test Data**

Channel	Frequency (MHz)	Reading (dBm)	Factor (dB)	PPSD (dBm)	Limit (dBm)	Result
Low	2402	-22.66	2.00	-20.66	8.00	Pass
Mid	2441	-24.93	2.00	-22.93		Pass
High	2480	-20.75	2.00	-18.75		Pass

## 5.6 Spurious Emissions

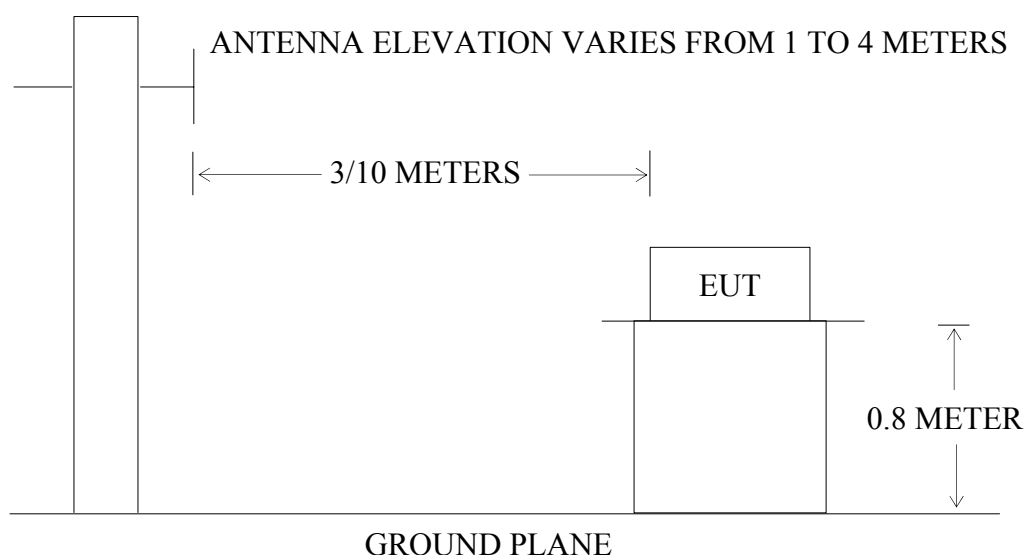
### a. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, 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, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### b. Test Procedure

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site. The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz. Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

### c. Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing

### d. Test Results

Pass

## 5.7 Radiated Emissions

### a. Limit

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Note: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength ( $\mu$ V/m at 3-meter)	Field Strength (dB $\mu$ V/m at 3-meter)
30-88	100	40

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88-216	150	43.5
216-960	200	46
Above 960	500	54

**b. Test Procedure**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

**c. Test Results****Below 1 GHz**

Operation Mode: On

Temperature: 25°C

Humidity: 70 % RH

Test Date: Sept. 24, 2009

Tested by: Jacky

Polarity: Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Detector Mode (PK/QP)	Factor (dB)	Actual FS (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)
65.34	V	Peak	51.18	-28.99	22.19	43.50	21.31
72.25	V	Peak	46.50	-21.56	19.94	43.50	22.56
399.166	V	---	---	---	---	---	---
454.000	V	---	---	---	---	---	---
496.000	V	---	---	---	---	---	---
658.166	V	---	---	---	---	---	---
68.50	H	Peak	49.32	-25.61	23.71	43.50	19.79
104.76	H	Peak	43.42	-18.56	24.86	46.00	21.14
178.950	H	---	---	---	---	---	---
323.333	H	---	---	---	---	---	---
332.666	H	---	---	---	---	---	---
598.666	H	---	---	---	---	---	---

Notes:

1. Measuring frequencies from 30 MHz to the 1GHz and the IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/Quasi-peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

**Above 1 GHz**

Operation Mode: On / CH Low

Temperature: 25°C

Humidity: 70 % RH

Test Date: Sept. 24, 2009

Tested by: Jacky

Polarity: Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CLCF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1193.00	V	57.73	54.92	-9.05	48.68	45.87	74.00	54.00	25.32/8.13	Peak/AVG
1851.10	V	52.51	49.01	-8.00	44.51	41.01	74.00	54.00	29.49/12.99	Peak/AVG
2170.00	V	54.01	50.19	-6.30	47.71	43.89	74.00	54.00	26.29/10.11	Peak/AVG
4804.00	V	48.55	44.20	0.68	49.23	44.88	74.00	54.00	24.77/9.12	Peak/AVG
7206.00	V	---	---	---	---	---	---	---	---	---
9608.00	V	---	---	---	---	---	---	---	---	---
12010.00	V	---	---	---	---	---	---	---	---	---
14412.00	V	---	---	---	---	---	---	---	---	---
16814.00	V	---	---	---	---	---	---	---	---	---
19216.00	V	---	---	---	---	---	---	---	---	---
21718.00	V	---	---	---	---	---	---	---	---	---

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24020.00	V	---	---	---	---	---	---	---	---	---
1065.00	H	59.61	55.95	-11.84	47.77	44.11	74.00	54.00	26.23/9.89	Peak/AVG
1590.00	H	57.30	54.10	-9.07	48.23	45.03	74.00	54.00	25.77/8.97	Peak/AVG
1906.66	H	55.14	51.86	-7.83	47.31	44.03	74.00	54.00	26.69/9.97	Peak/AVG
4804.00	H	49.15	46.00	0.68	49.83	46.68	74.00	54.00	20.17/7.32	Peak/AVG
7206.00	H	---	---	---	---	---	---	---	---	---
9608.00	H	---	---	---	---	---	---	---	---	---
12010.00	H	---	---	---	---	---	---	---	---	---
14412.00	H	---	---	---	---	---	---	---	---	---
16814.00	H	---	---	---	---	---	---	---	---	---
19216.00	H	---	---	---	---	---	---	---	---	---
21718.00	H	---	---	---	---	---	---	---	---	---
24020.00	H	---	---	---	---	---	---	---	---	---

Operation Mode: On / CH Mid

Test Date: Sept. 24, 2009

Temperature: 25°C

Tested by: Jacky

Humidity: 70 % RH

Polarity: Ver. / Hor.

Freq. (MHz)	Ant.Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CLCF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1593.33	V	59.67	55.27	-9.05	50.62	46.22	74.00	54.00	22.35/7.87	Peak/AVG
1856.66	V	52.19	48.65	-8.02	44.17	40.63	74.00	54.00	29.83/13.37	Peak/AVG
2193.33	V	53.56	49.30	-6.69	46.87	42.61	74.00	54.00	27.13/11.39	Peak/AVG
4882.00	V	53.12	50.20	0.77	54.88	50.97	74.00	54.00	19.12/3.03	Peak/AVG
7323.00	V	---	---	---	---	---	---	---	---	---
9764.00	V	---	---	---	---	---	---	---	---	---
12205.00	V	---	---	---	---	---	---	---	---	---
14646.00	V	---	---	---	---	---	---	---	---	---
17087.00	V	---	---	---	---	---	---	---	---	---
19528.00	V	---	---	---	---	---	---	---	---	---
21969.00	V	---	---	---	---	---	---	---	---	---
24410.00	V	---	---	---	---	---	---	---	---	---
1590.00	H	55.25	51.76	-9.07	46.18	42.69	74.00	54.00	27.82/11.31	Peak/AVG
2190.00	H	50.81	46.93	-6.71	44.10	39.59	74.00	54.00	29.90/14.41	Peak/AVG
2703.33	H	51.37	47.50	-4.91	46.46	42.59	74.00	54.00	27.54/11.41	Peak/AVG
4882.00	H	51.34	48.57	0.77	50.57	49.34	74.00	54.00	23.43/4.66	Peak/AVG
7323.00	H	---	---	---	---	---	---	---	---	---
9764.00	H	---	---	---	---	---	---	---	---	---
12205.00	H	---	---	---	---	---	---	---	---	---
14646.00	H	---	---	---	---	---	---	---	---	---
17087.00	H	---	---	---	---	---	---	---	---	---
19528.00	H	---	---	---	---	---	---	---	---	---
21969.00	H	---	---	---	---	---	---	---	---	---
24410.00	H	---	---	---	---	---	---	---	---	---



FCC ID: XR9V003

Operation Mode: On / CH Hig  
 Temperature: 25°C  
 Humidity: 70 % RH

Test Date: Sept. 24, 2009  
 Tested by: Jacky  
 Polarity: Ver. / Hor.

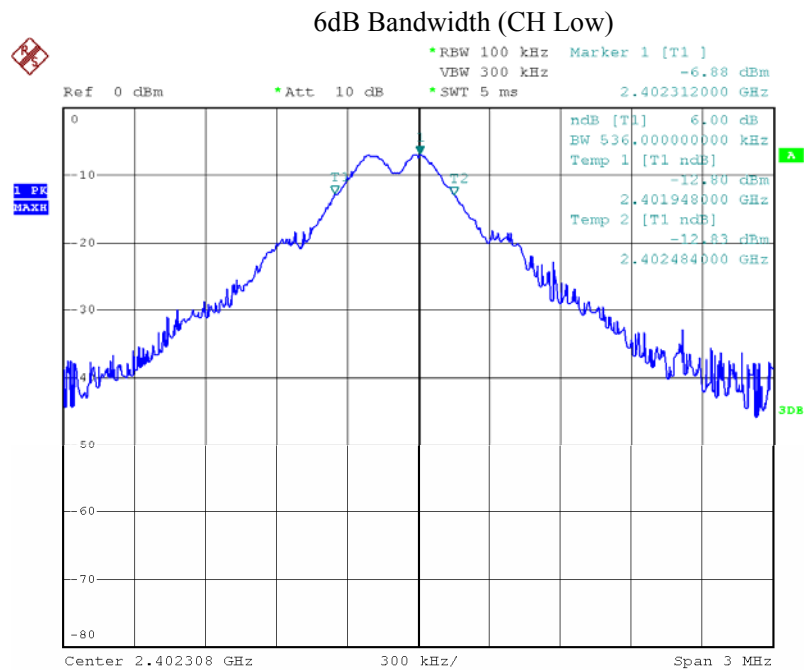
Freq. (MHz)	Ant.Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CLCF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1590.00	V	59.62	55.80	-9.07	50.55	46.73	74.00	54.00	23.45/7.27	Peak/AVG
2220.00	V	53.80	49.45	-6.59	47.21	42.86	74.00	54.00	26.79/11.14	Peak/AVG
2336.66	V	53.25	49.60	-6.13	47.12	43.47	74.00	54.00	26.88/10.53	Peak/AVG
4960.00	V	51.30	48.18	0.80	52.10	48.98	74.00	54.00	21.90/5.02	Peak/AVG
7440.00	V	---	---	---	---	---	---	---	---	---
9920.00	V	---	---	---	---	---	---	---	---	---
12400.00	V	---	---	---	---	---	---	---	---	---
14880.00	V	---	---	---	---	---	---	---	---	---
17360.00	V	---	---	---	---	---	---	---	---	---
19840.00	V	---	---	---	---	---	---	---	---	---
22320.00	V	---	---	---	---	---	---	---	---	---
24800.00	V	---	---	---	---	---	---	---	---	---
1063.33	H	54.32	51.15	-11.82	45.18	39.33	74.00	54.00	21.50/14.67	Peak/AVG
1860.00	H	51.61	47.40	-8.01	44.10	39.39	74.00	54.00	20.40/14.61	Peak/AVG
2100.00	H	51.16	46.25	-7.06	46.46	39.19	74.00	54.00	19.90/14.81	Peak/AVG
4960.00	H	50.79	47.01	0.80	51.59	47.81	74.00	54.00	22.41/6.19	Peak/AVG
7440.00	---	---	---	---	---	---	---	---	---	---
9920.00	---	---	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---	---	---
19840.00	---	---	---	---	---	---	---	---	---	---
22320.00	---	---	---	---	---	---	---	---	---	---
24800.00	---	---	---	---	---	---	---	---	---	---

## Notes:

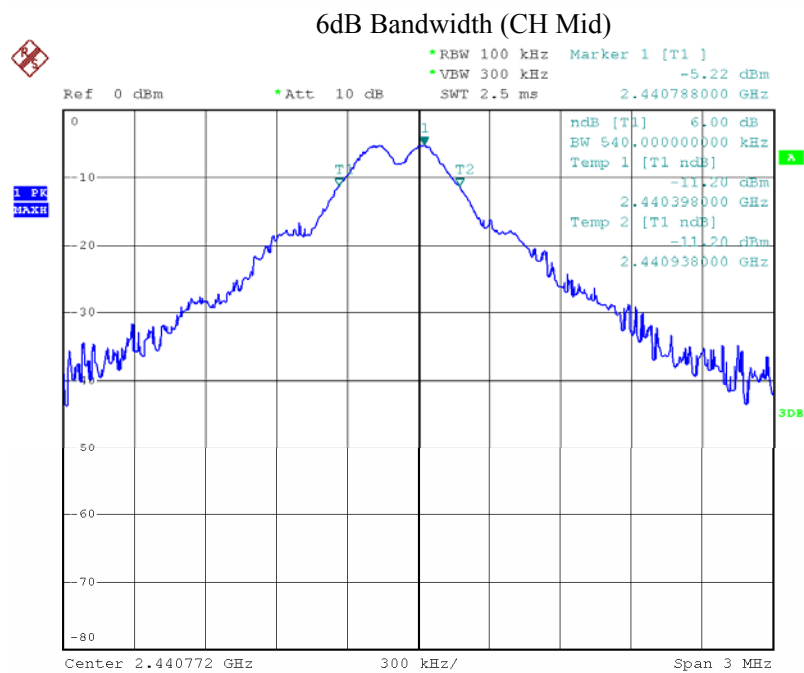
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
  - b. AV Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.
5. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

6. Test Plot

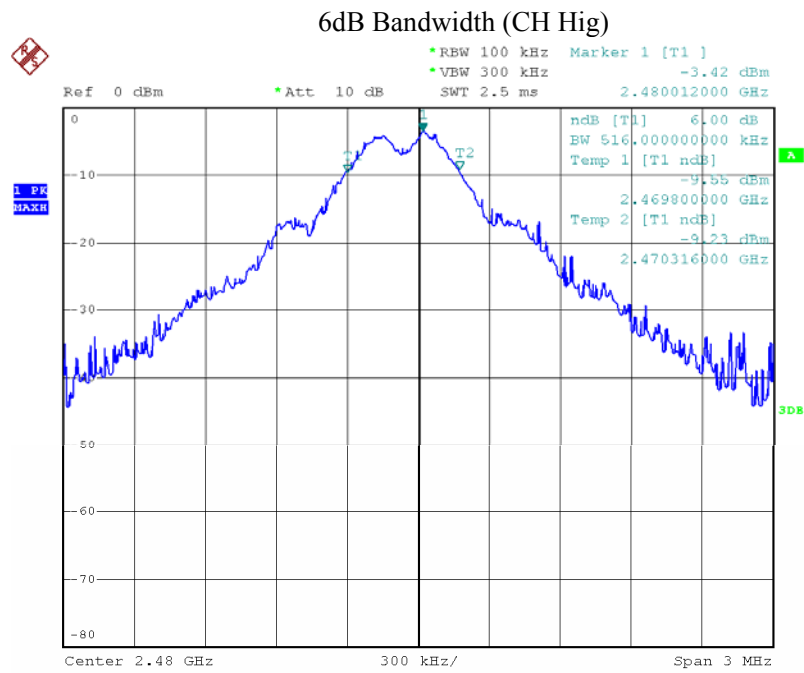
6.1 6dB Bandwidth



ANBOTEK  
Date: 23.SEP.2009 14:58:29

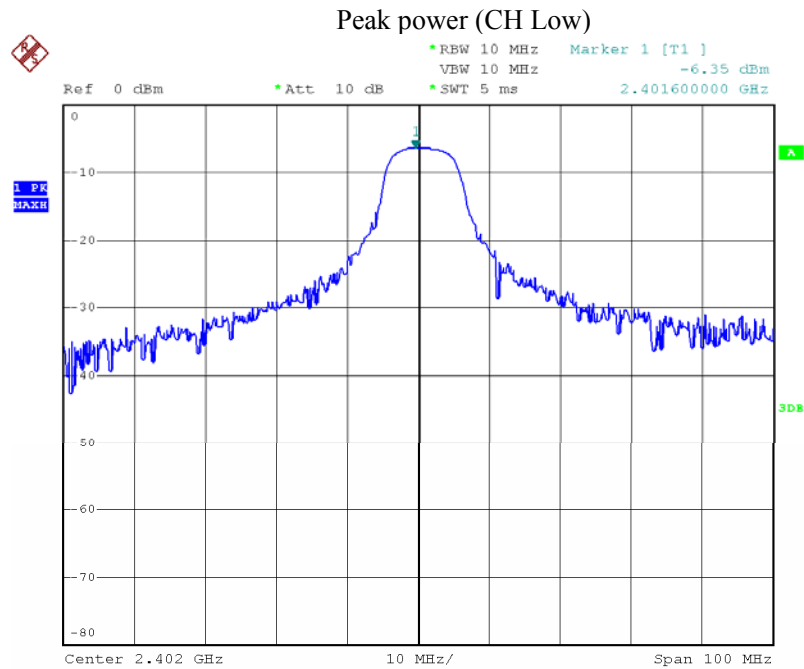


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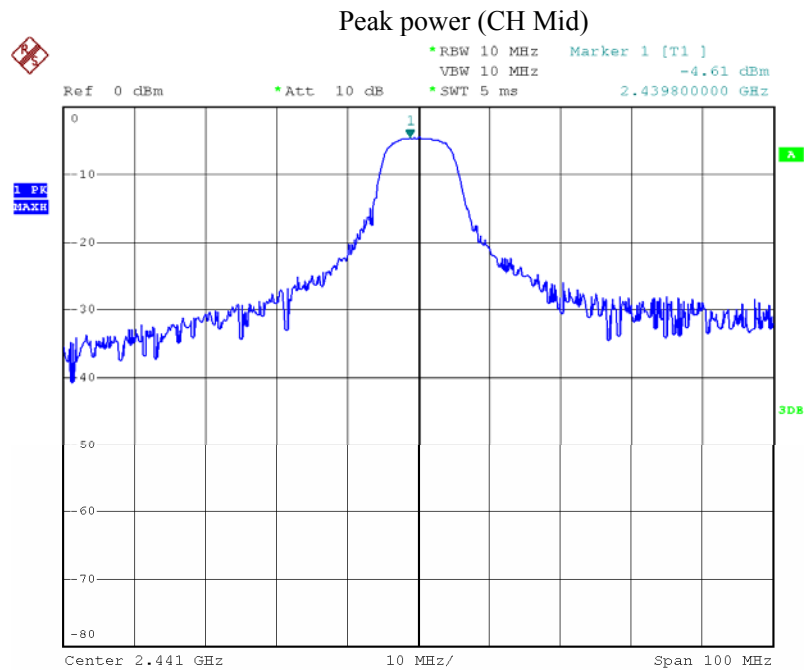


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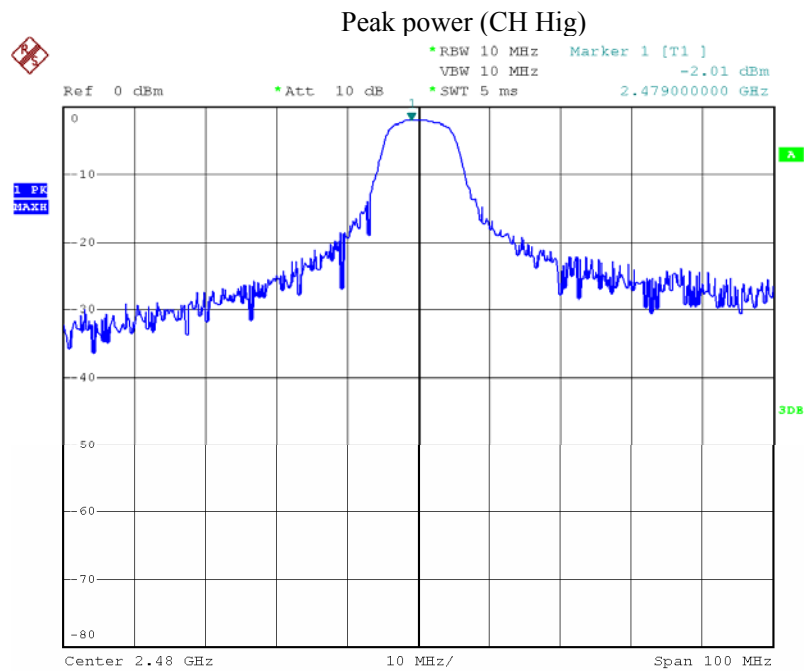
6.2 Peak Power



ANBOTEK  
Date: 23.SEP.2009 15:20:08

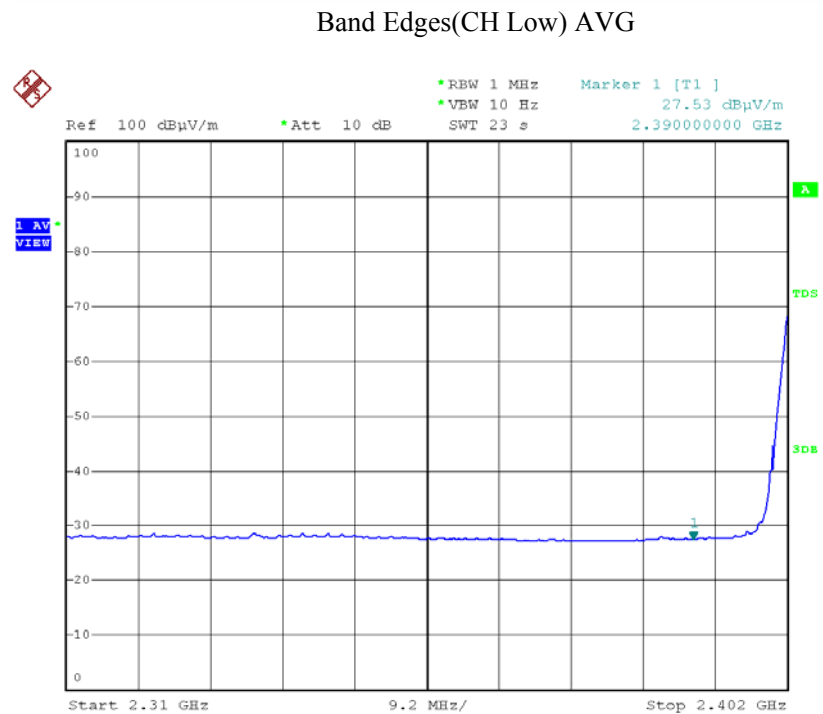
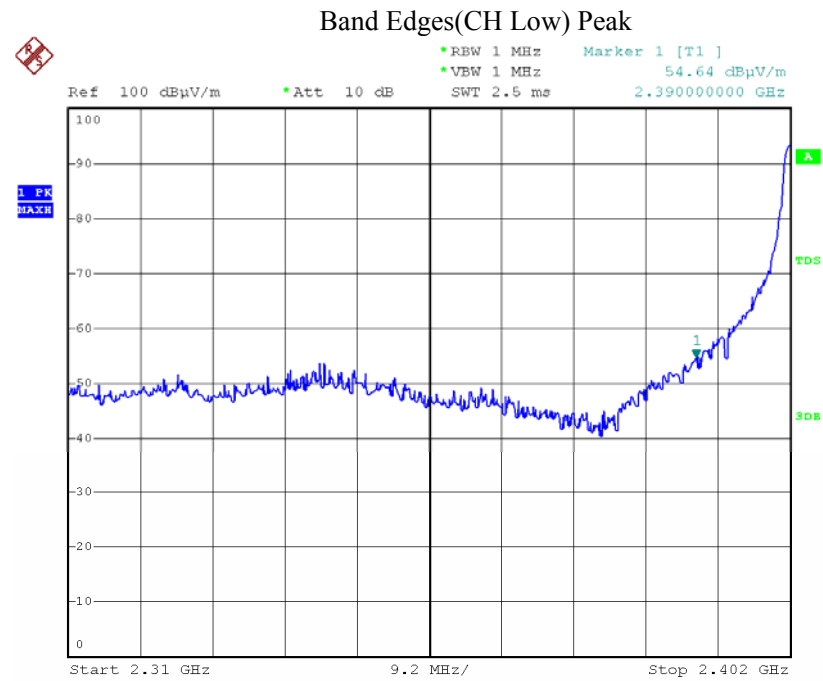


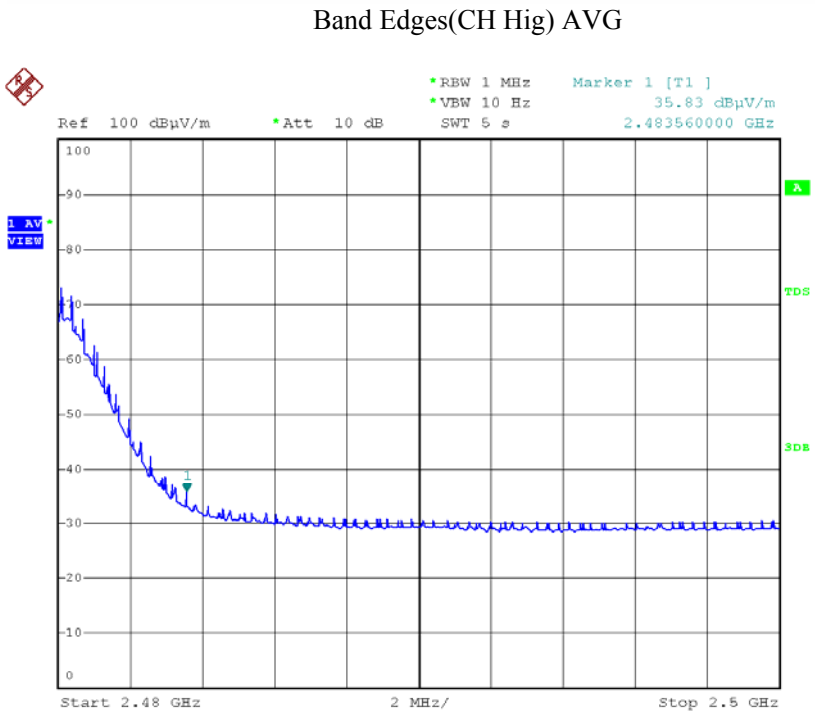
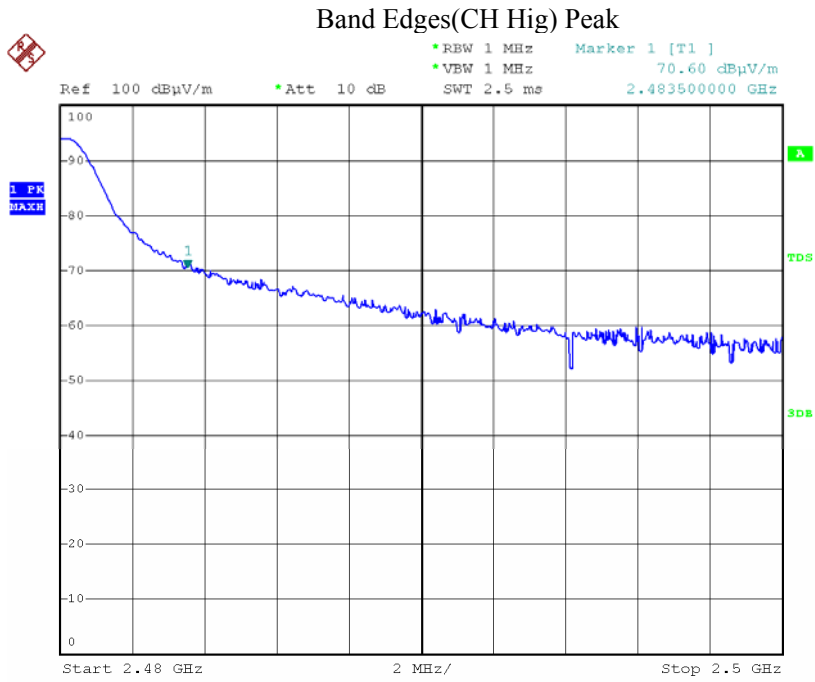
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Date: 23.SEP.2009 15:30:16



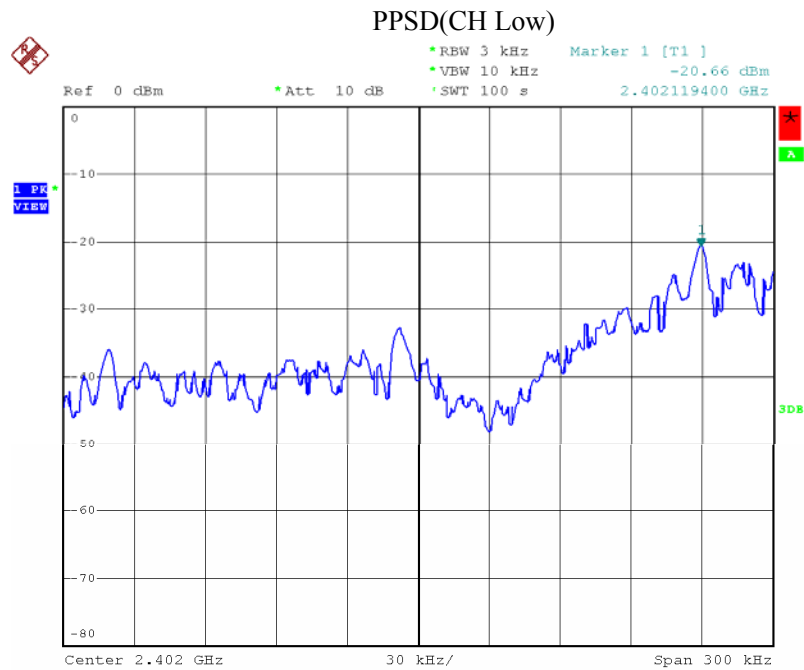
ANBOTEK  
Date: 23.SEP.2009 15:38:50

6.3 Band Edges Measurement

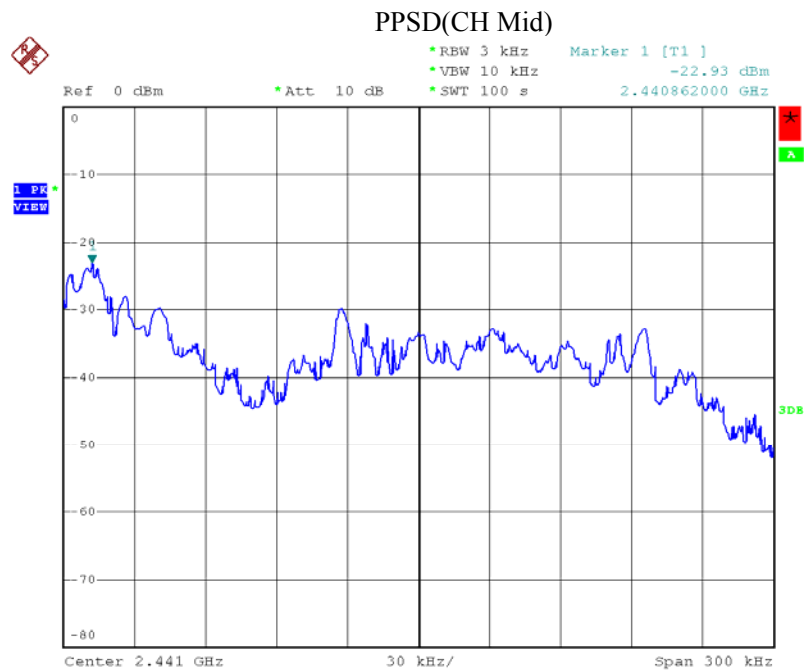




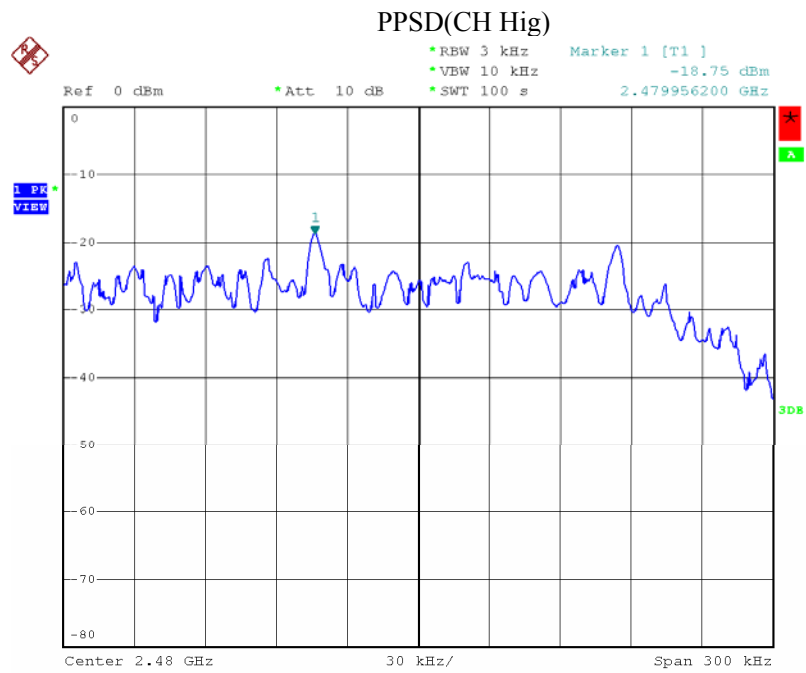
6.4 Peak Power Spectral Density



ANBOTEK  
Date: 27.SEP.2009 16:24:05



ANBOTEK  
Date: 27.SEP.2009 16:29:25



ANBOTEK  
Date: 27.SEP.2009 16:32:37



## 7. MPE Exhibit

### 7.1 Test Equipment

Please refer to Section 2 this report

### 7.2 Limit

According to FCC 15.247(i), Systems operating under provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commissions guidelines.

FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)(1) of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300	61.4	0.163	1.0	6
300–1500			1/300	6
1500–100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300	27.5	0.073	0.2	30
300–1500			1/1500	30
1500–100,000			1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

### 7.3 Test Result

Product	: Telemeter	Test Mode	: CH Low ~ CH High
Test Item	: RF Exposure	Temperature	: 24
Test Voltage	: DC 7.6V	Humidity	: 55%RH
Test Result	: PASS		

#### Evaluation of RF Exposure Compliance Requirements

MPE Prediction of MPE according to equation from page 19 of OET Bulletin 65, Edition 97-01

MPE Exhibit

Compliance with FCC Rules

$$S = PG/4\pi R^2$$

Where:

S = Power density

P = Power input to antenna

G = Power gain of the antenna relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum output power at antenna input terminal:

-2.01 dBm = 0.630 mW

Prediction distance: <20 cm

Antenna gain: 2 dBi

Prediction frequency: 2480MHz

MPE limit for uncontrolled exposure at prediction frequency: 1.0 mW/cm<sup>2</sup>

Remark: No non-compliance noted.

(SAR evaluation is not required for the portable device while its maximum output power is low than the general population low threshold:

$$60/f_{\text{(GHz)}} = 60/2.480 = 24.19\text{mW}$$