

## TEST REPORT

**Report Number: 3119206MPK-001**

**Project Number: 3119206**

**Report Date: April 6, 2007**

**Testing performed on the  
Tire Pressure Stem Handheld Reader  
Model #: 83-005-01**

**FCC ID: U7C-83005001**

**IC: 7045A-83005001**

**to**

**FCC Part 15.247 and RSS-210 (Annex 8)**

**for  
Eldec Corporation**



A2LA Certificate Number: 1755-01

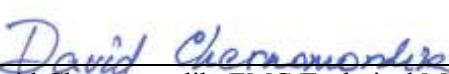
**Test Performed by:**

Intertek Testing Services NA, Inc  
1365 Adams Court  
Menlo Park, CA 94025

**Test Authorized by:**

Eldec Corporation  
16700 13th Ave West  
Lynnwood, WA 98046-9727

**Prepared by:**

  
\_\_\_\_\_  
David Chernomordik, EMC Technical Manager

**Date:** April 6, 2007

**Reviewed by:**

  
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Ollie Moyrong, EMC Operation Manager

**Date:** April 6, 2007

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**Report No. 3119206MPK-001**

**Equipment Under Test:** Tire Pressure Stem Handheld Reader with RFID and Bluetooth modules

**Trade Name:** Eldec Corporation

**Model No.:** 83-005-01

**Part No.:** 83-005001-01

**FCC ID:** U7C-83005001

**IC ID:** 7045A-83005001

**Applicant:** Eldec Corporation

**Contact:** Mr. Mike Rohona

**Address:** 16700 13th Ave West

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**Country**

**Tel. Number:** 425-743-8536

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**Email:** Mike.Rohona@craneaerospace.com

**Applicable Regulation:** FCC Part 15, Subpart C

RSS-210 Annex 8

**Test Site Location:** ITS – Site 1

1365 Adams Drive

Menlo Park, CA 94025

**Date of Test:** March 14 – April 4, 2006

*We attest to the accuracy of this report:*

David Chernomordik  
David Chernomordik  
EMC Technical Manager

Ollie Moyrong  
Ollie Moyrong  
Operations Manager

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## 1.0 Introduction

The Equipment under Test (EUT) is a Tire Pressure Stem Handheld Reader (TPS HHR). The TPS HHR is a Radio Frequency Identification (RFID) transponder reader. It is used in tandem with a Personal Digital Assistant (PDA) to collect pressure and temperature calibration and identification data from a Tire Pressure Stem (TPS).

The TPS HHR consists of two transceiver systems, a RFID operating at 134.2 kHz and a Bluetooth module operating at 2.4 GHz.

This report documents the compliance of the Bluetooth module with the FCC Part 15.247 and RSS-210 requirements.

### 1.1 Summary of Tests

TEST	REFERENCE FCC Subpart C	REFERENCE RSS-210	RESULTS
Output power	15.247(b)	A8.4(2)	Complies
20-dB Bandwidth	15.247(a)(1)	A8.1(2)	Complies
Channel Separation	15.247(a)(1)	A8.1(2)	Complies
Number of Hopping Channels	15.247(a)(1)	A8.1(4)	Complies
Average Channel Occupancy Time	15.47(a)(1)	A8.1(4)	Complies
Out-of-band Antenna Conducted Emission	15.247(c)	A8.5	N/A, no antenna connector on the EUT
Out-of-Band Radiated Emission (except emissions in Restricted Bands)	15.247(c)	A8.5	Complies
Radiated Emission in Restricted Bands	15.247(c), 15.205	A8.5, 2.7	Complies
RF exposure	15.247(i)	RSS-102	Complies
AC Conducted Emission	15.207	RSS-Gen	Not applicable *
Radiated Emission from Digital Parts and receiver	15.109	RSS-Gen	Complies
Antenna Requirement	15.203	RSS-Gen	Complies

\* The EUT is battery powered

**2.0 General Description****2.1 Product Description****Overview of the Bluetooth module**

<b>Type of Transmission</b>	Spread Spectrum, Frequency Hopping
<b>Rated RF Output</b>	1 mW
<b>Frequency Range</b>	2402-2480 MHz
<b>Number of Channel(s)</b>	32
<b>Modulation Type</b>	GFSK
<b>Data Rate</b>	1 Mbps
<b>Antenna(s) type &amp; Gain</b>	fixed internal, 0.5 dBi

A production version of the sample was received on March 9, 2006 in good condition. As declared by the Applicant, it is identical to production units.

Test start date: March 14, 2006

Test end date: April 4, 2006

**2.2 Related Submittal(s) Grants**

The EUT is a composite device which consists two radios.

The application for Part 15.209 is filed under the same FCC ID.

### 2.3 Test Methodology

Radiated measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Data Sheet**" of this Application. All other measurements were made in accordance with the procedures described in DA 00-705.

### 2.4 Test Facility

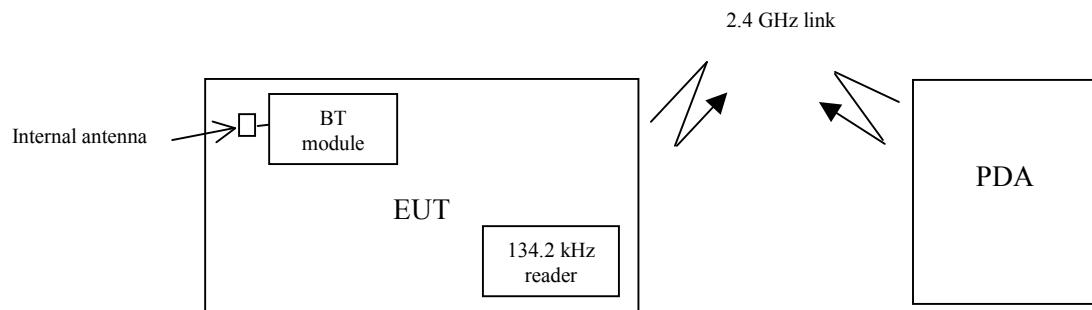
Then radiated emission test site and conducted measurement facility used to collect the data is site 1 located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC.

### 3.0 System Test Configuration

#### 3.1 Support Equipment

Item #	Description	Model No.	S/N
1	PDA	IPAQ, X11-21204	2CK6250BLV

#### 3.2 Block Diagram of Test Setup



### 3.3 Software Exercise Program

During radiated testing, the test software provided by the applicant was used to exercise the various system components in a manner similar to a typical use.

### 3.4 Mode of Operation During Test

The transmitter was tested in a “Test mode” (simulating normal operation) which allows control of the device from the PDA. With hopping disabled, the EUT was setup to transmit continuously at the lowest, middle, and highest channels (frequencies). Some tests were performed with hopping enabled.

### 3.5 Modifications Required for Compliance

No modifications were installed by Intertek Testing Services during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Topcon prior to compliance testing).

## 4.0 Measurement Results

### 4.1 Conducted Output Power at Antenna Terminals FCC 15.247(b)(1)

#### 4.1.1 Requirements

For systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, the maximum peak conducted output power is 1 watt (30 dBm), for all other systems 0.125 W (21 dBm).

#### 4.1.2 Procedure

Since the EUT has no antenna port, the alternative method of calculating conducted output power is used.

The Field Strength (E) is measured at 3 m distance. Using formula

$$E = \frac{\sqrt{30 \cdot P \cdot G}}{D}$$

where  $E$  is in V/m,  $P$  is conducted power in W,  $D$  is a distance in m,  $G$  is antenna gain (numerical), the conducted power is calculated.

#### 4.1.3 Test Results

Frequency MHz	Measured Field Strength @ 3 m dB(uV/m)	Calculated output Power dBm	Calculated Output Power mW
2402	96.2	0.4	1.1
2441	96.0	0.3	1.1
2480	94.7	-1.0	0.8

Notes: 1. Hopping function was disabled during the test.

2. The EUT's antenna has 0.5 dBi gain.

<b>Results:</b>	<b>Complies</b>
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#### 4.2 Hopping Channel 20-dB Bandwidth FCC 15.247(a)

##### 4.2.1 Procedure

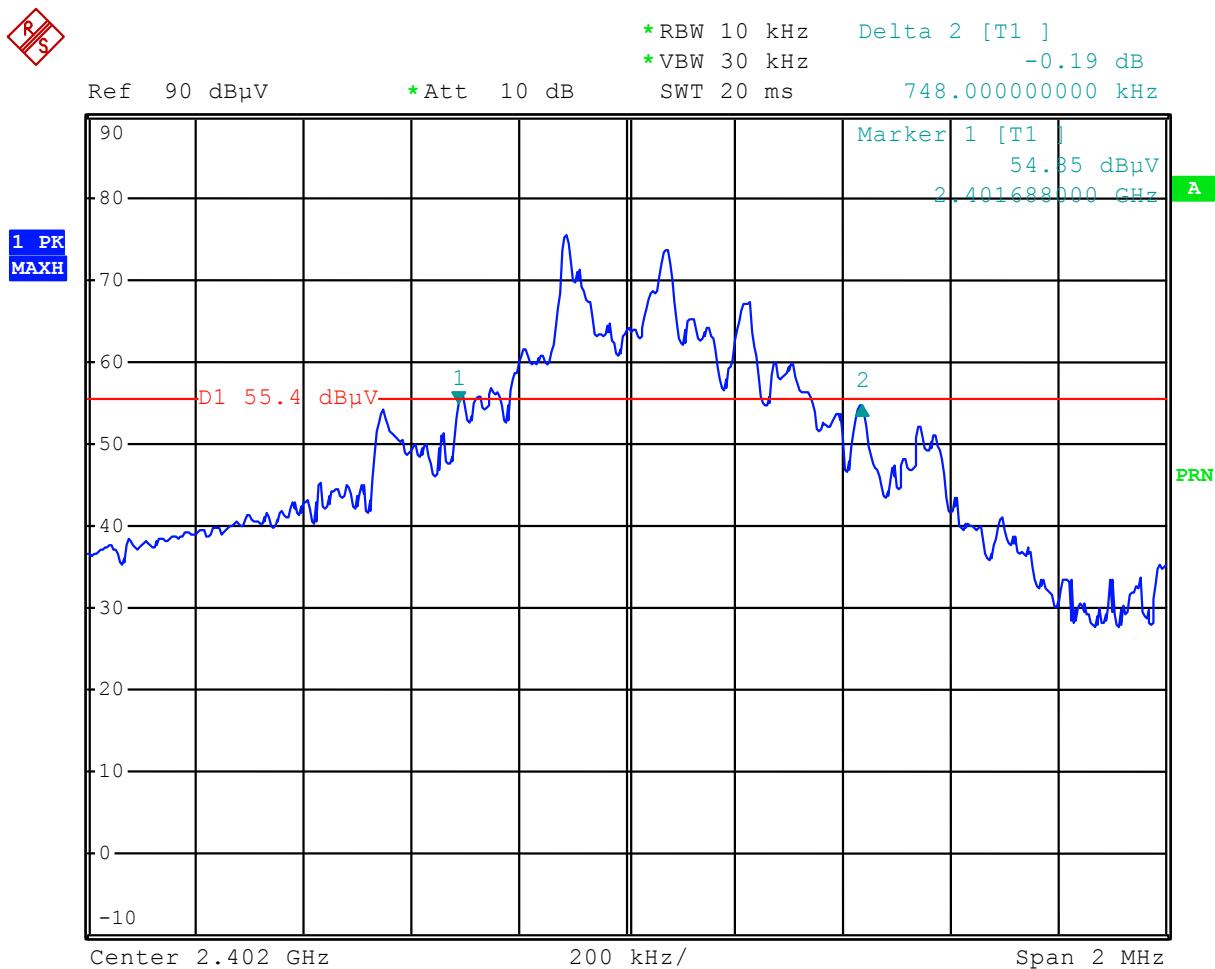
The measuring antenna, connected to a spectrum analyzer, was setup in a close proximity to the EUT. The spectrum analyzer resolution bandwidth was set to approximately 1% of the 20-dB Bandwidth. The 20-dB Bandwidth was measured by using the DELTA MARKER function of the analyzer.

In addition, the occupied bandwidth (99%) was measured at the middle channel.

##### 4.2.2 Test Results

<b>Frequency MHz</b>	<b>20-dB channel bandwidth MHz</b>	<b>Occupied bandwidth MHz</b>	<b>Plot</b>
2402	0.748	0.880	2.1, 2.2
2440	0.892	0.872	2.3, 2.4
2480	0.896	0.872	2.5, 2.6

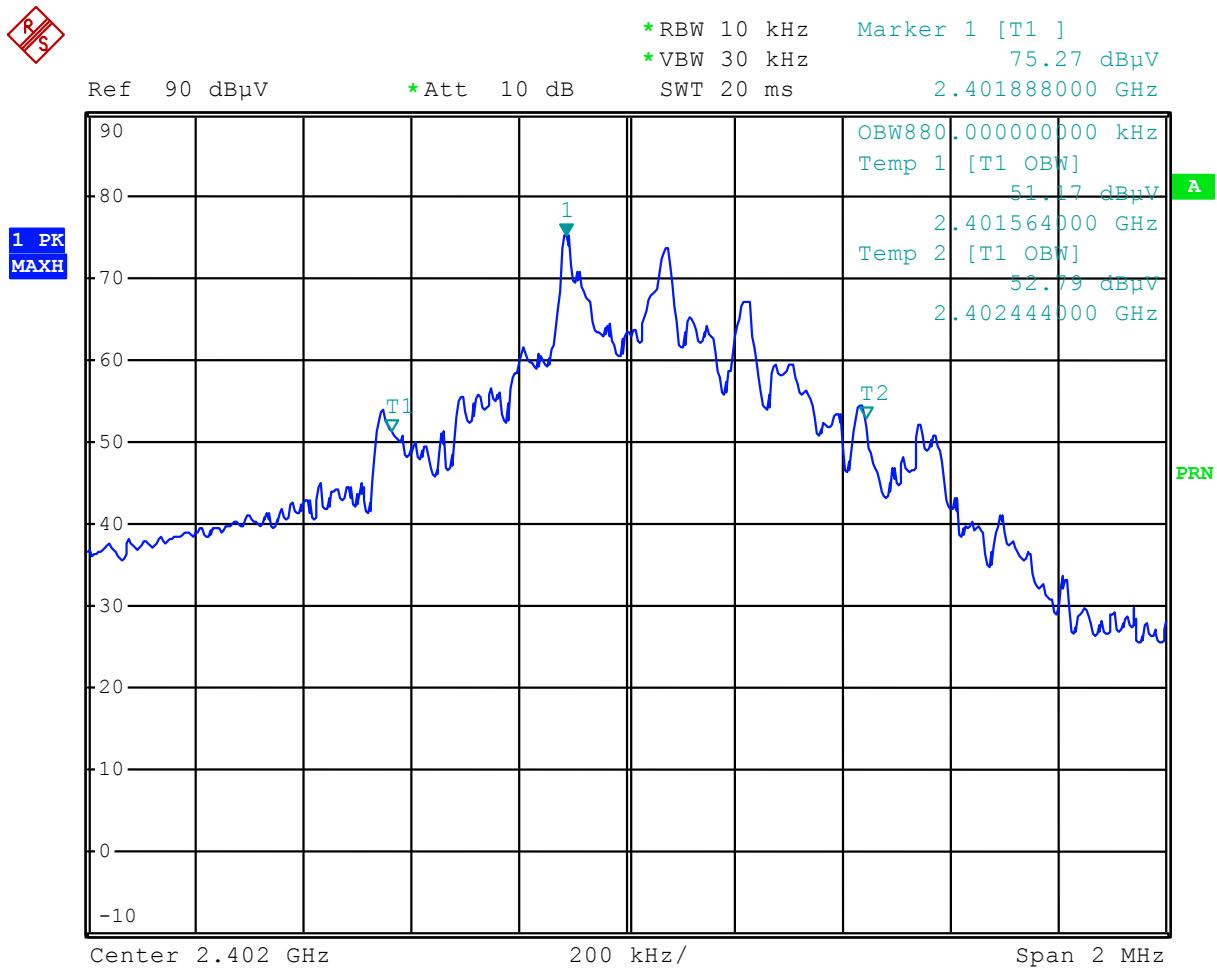
Plot 2.1



Comment: 20-dB bandwidth, f=2402 MHz

Date: 30.MAR.2007 12:28:51

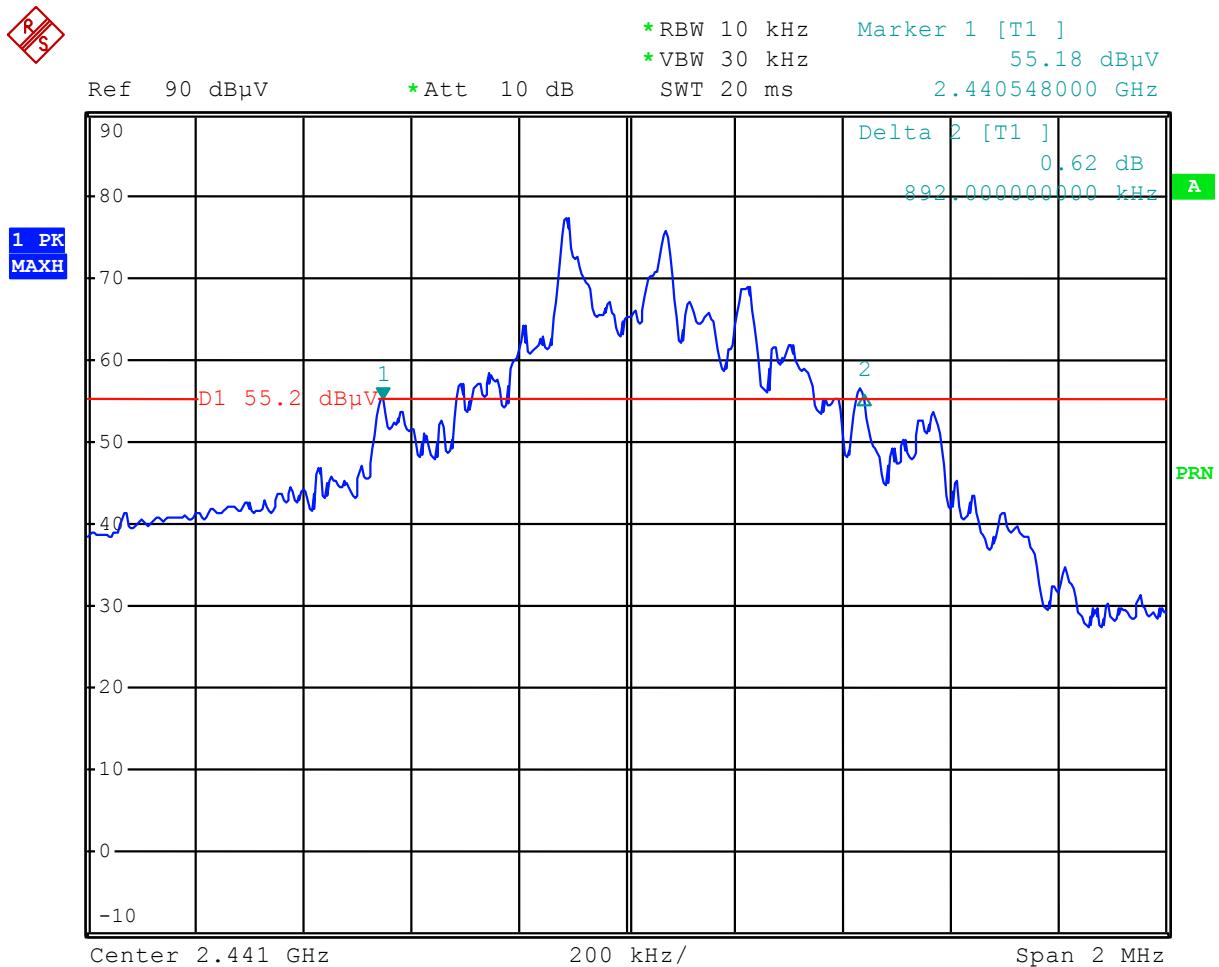
Plot 2.2



Comment: Occupied bandwidth, f=2402 MHz

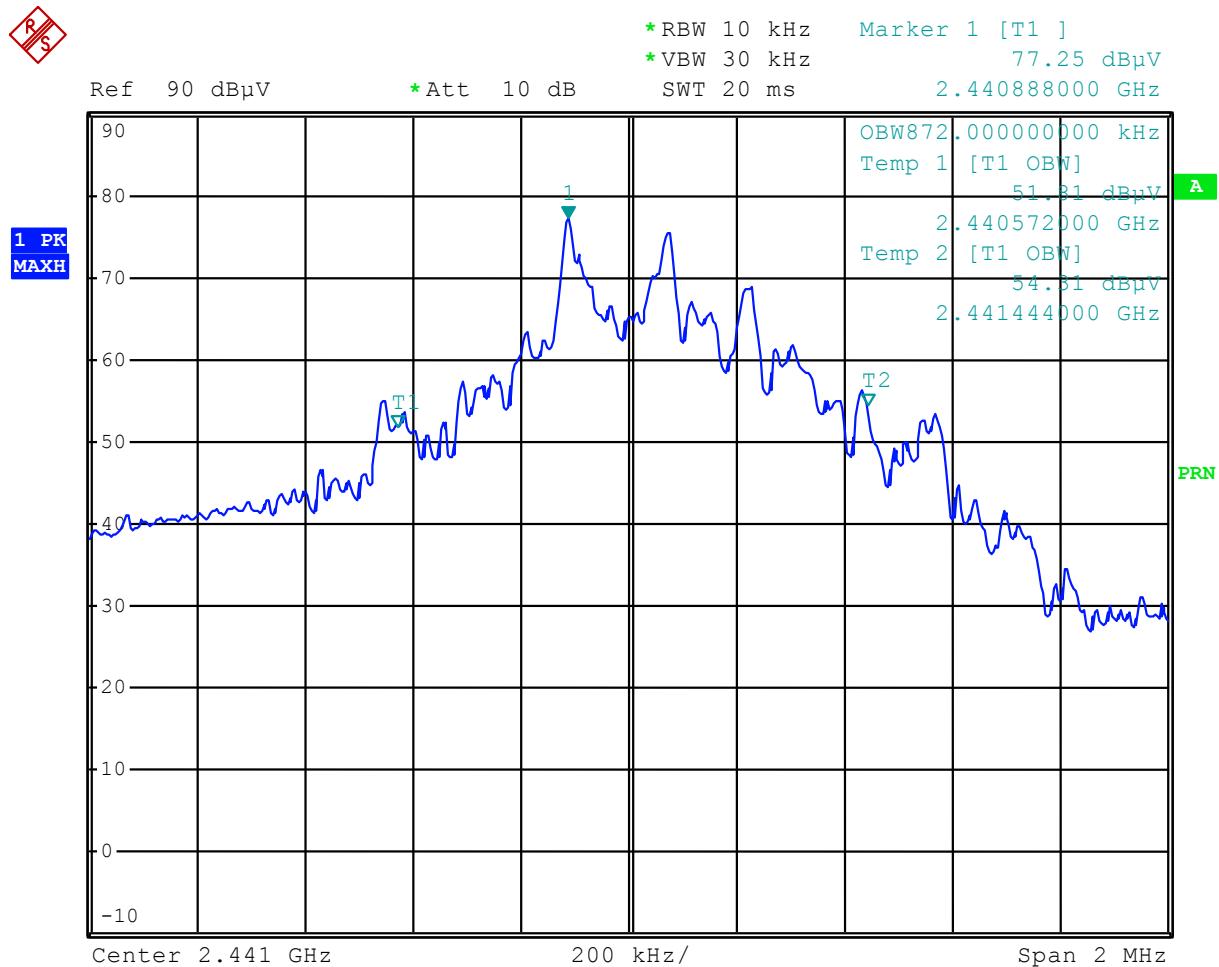
Date: 30.MAR.2007 12:31:55

Plot 2.3



Comment: 20-dB bandwidth, f=2441 MHz  
 Date: 30.MAR.2007 12:39:06

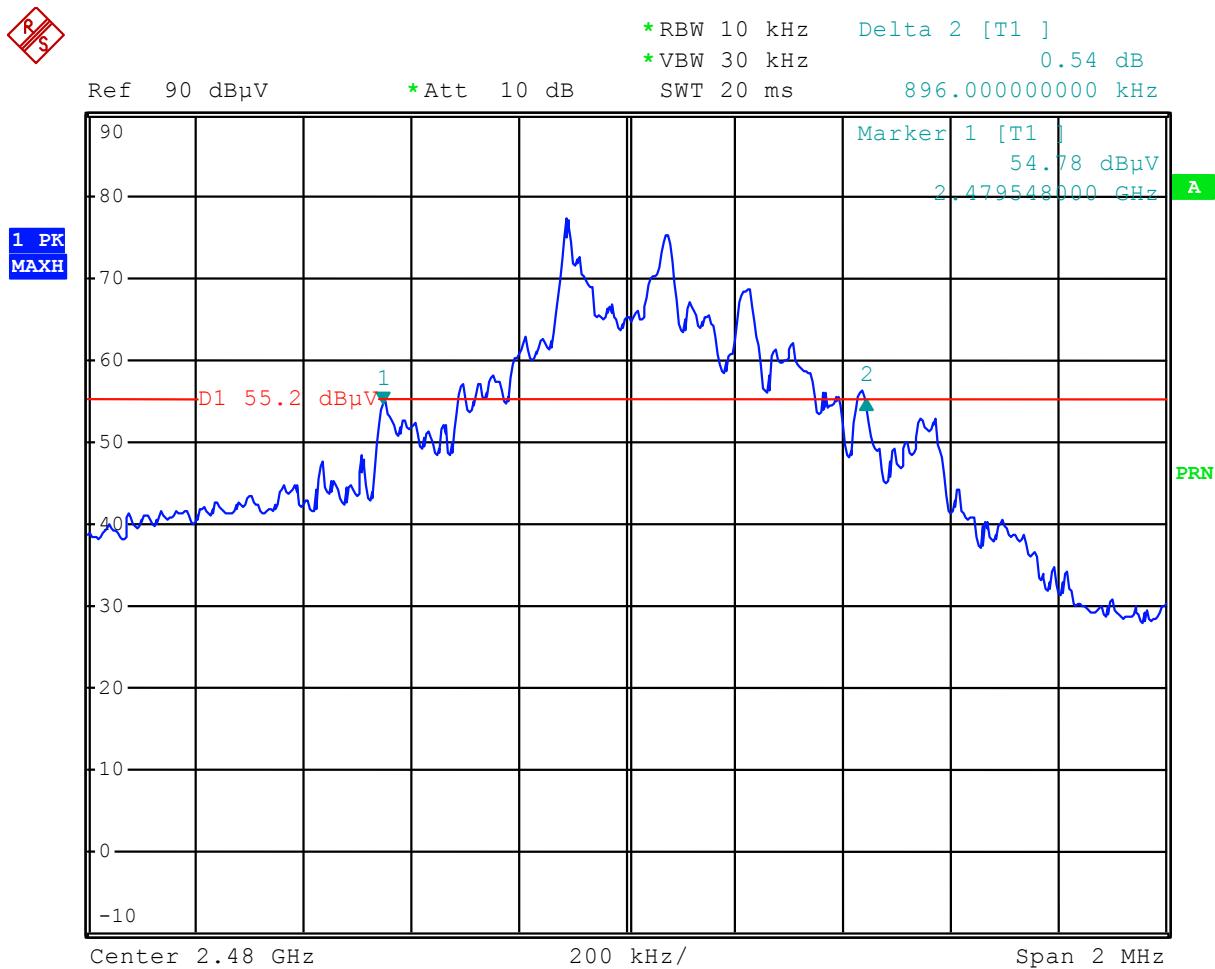
Plot 2.4



Comment: Occupied bandwidth, f=2441 MHz

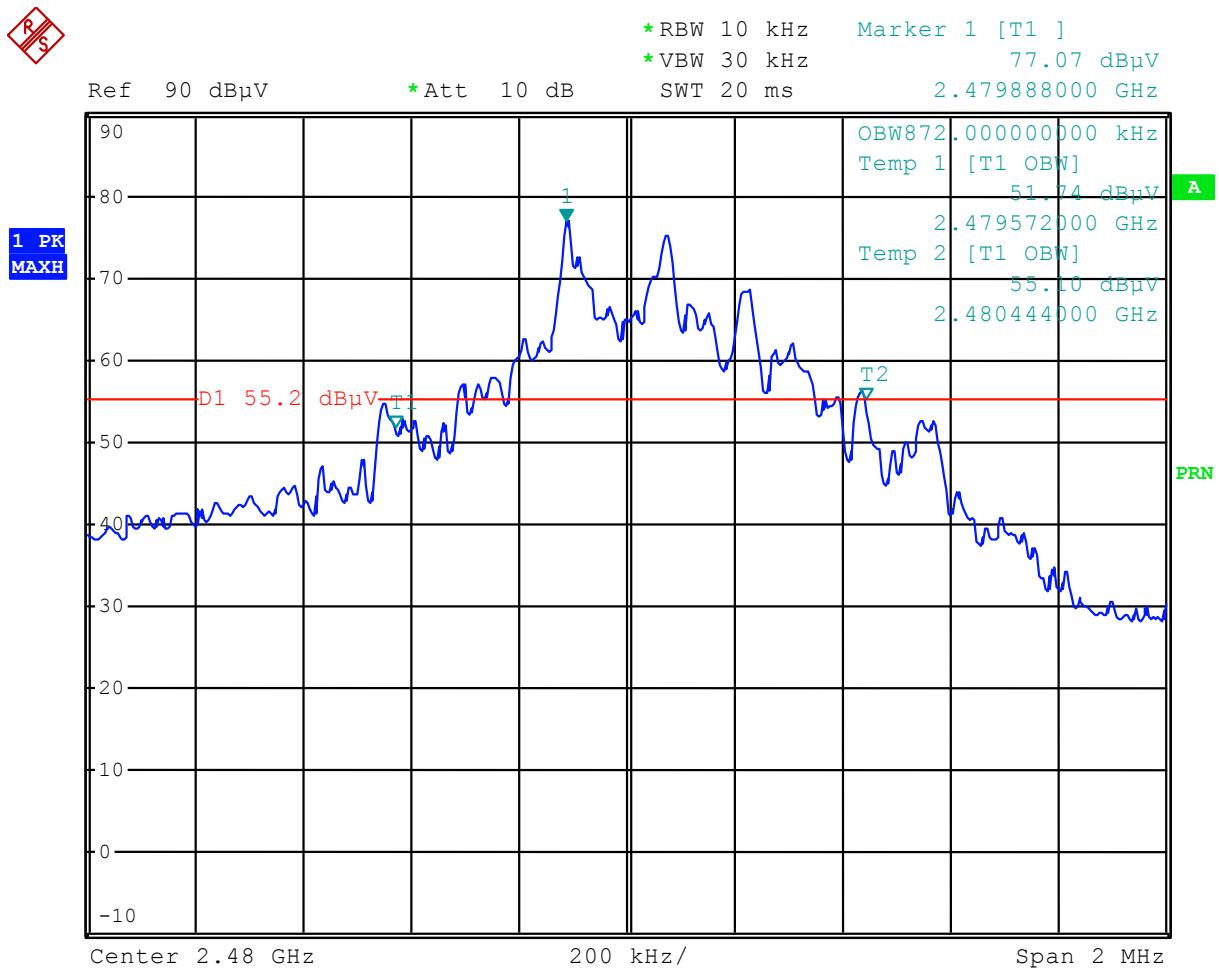
Date: 30.MAR.2007 12:36:01

Plot 2.5



Comment: 20-dB bandwidth, f=2480 MHz  
 Date: 30.MAR.2007 12:42:15

Plot 2.6



Comment: Occupied bandwidth, f=2480 MHz  
 Date: 30.MAR.2007 12:43:28

**4.3 Carrier Frequency Separation**  
FCC Ref: 15.247(a)(1)

**4.3.1 Requirement**

Systems shall have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20-dB bandwidth of the hopping channel, whichever is greater.

**4.3.2 Procedure**

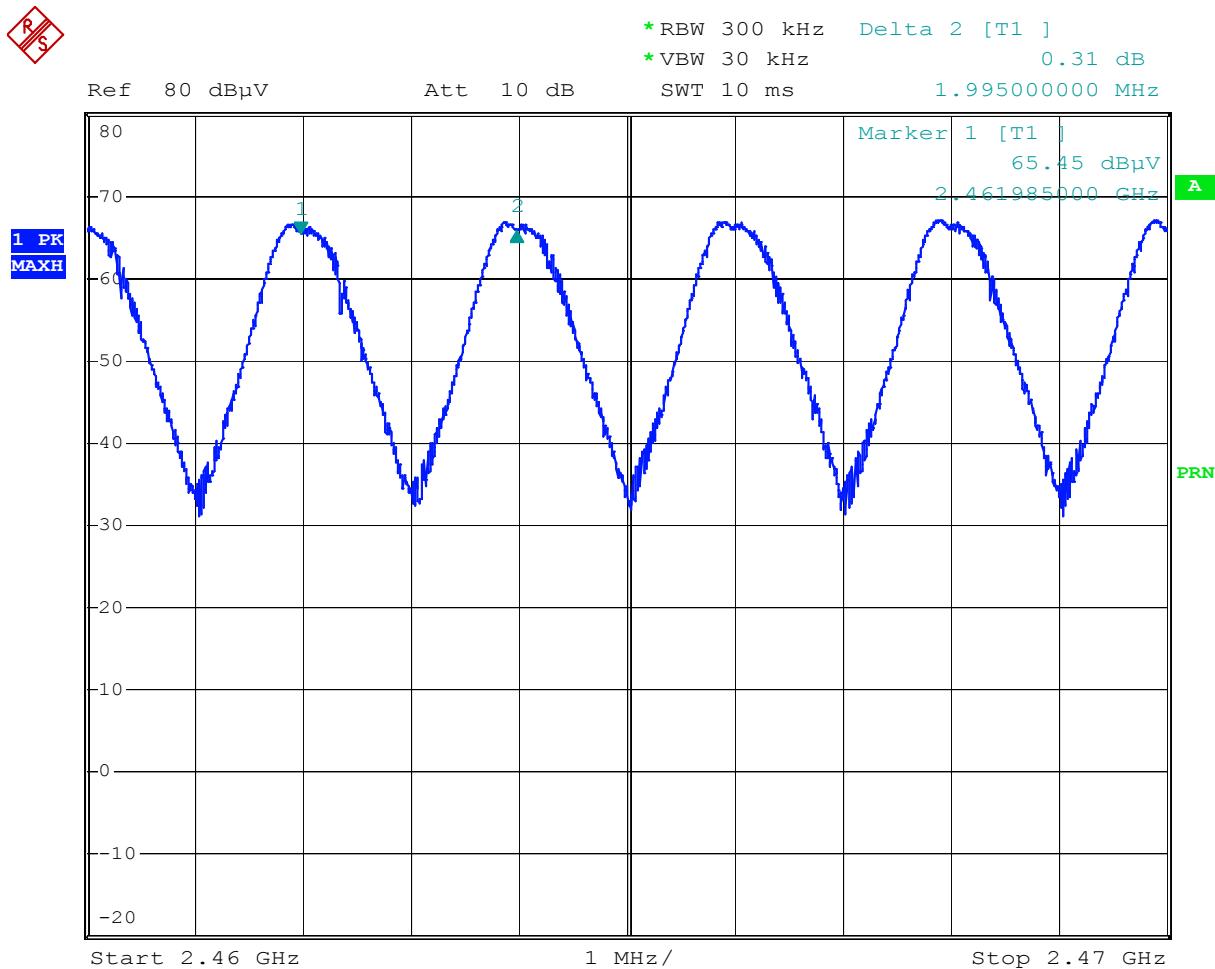
Using the DELTA MARKER function of the analyzer, the frequency separation between two adjacent channels was measured and compared against the limit.

**4.3.3 Test Results**

Please refer to the attached spectrum analyzer plot # 3.1 for the test result. The channel separation is 2.0 MHz.

<b>Results:</b>	<b>Complies</b>
-----------------	-----------------

Plot 3.1



Comment: Channels separation  
 Date: 30.MAR.2007 17:16:44



4.4 Number of Hopping Channels  
FCC Ref: 15.247(a)(1)(iii)

4.4.1 Requirement

Systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping channels.

4.4.2 Procedure

With the analyzer set to MAX HOLD, spectrum analyzer readings were taken. The channel peaks so recorded were calculated, and the total number compared to the minimum number of channels required in the regulation.

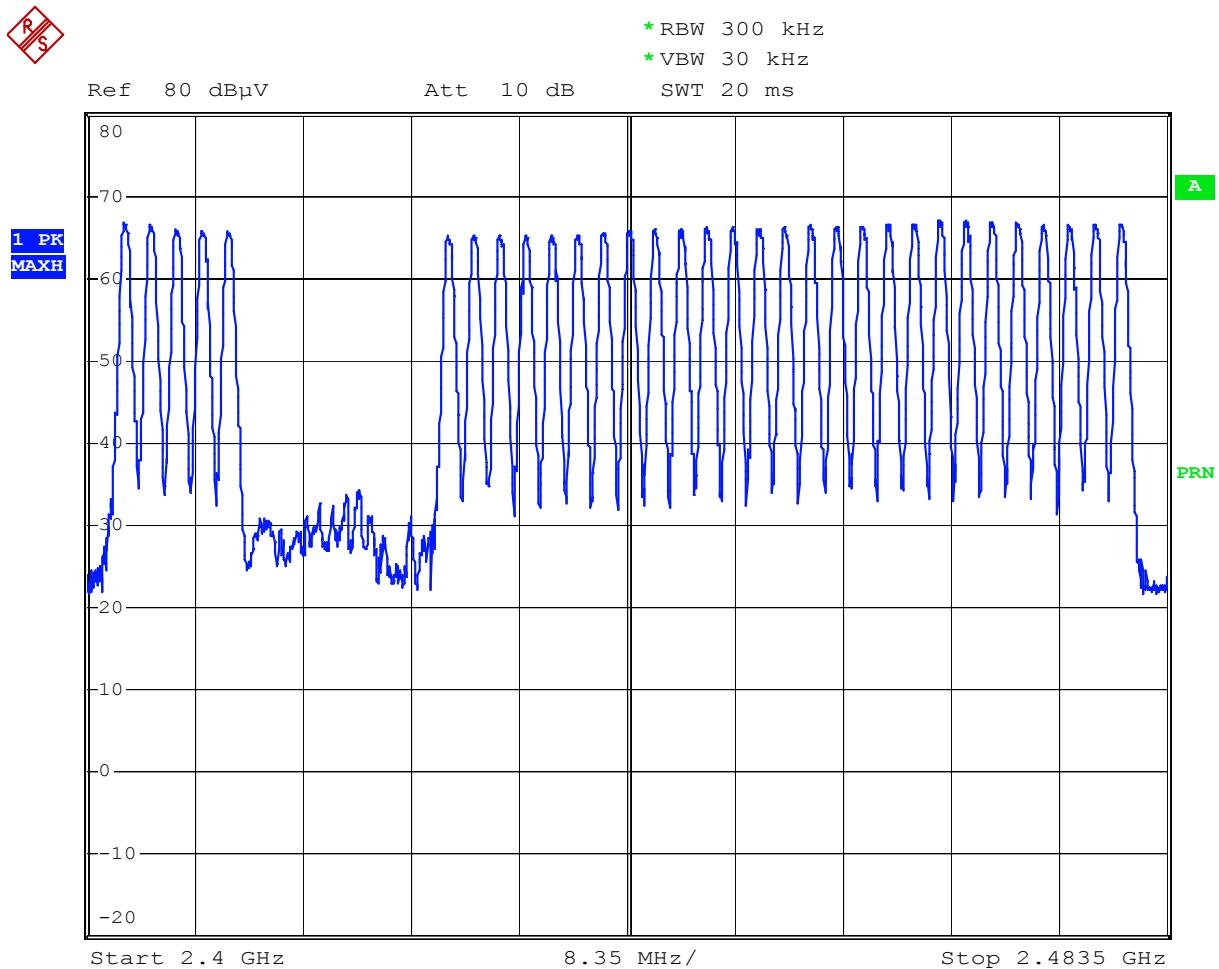
4.4.3 Test Results

Number of hopping channels	32
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Refer to attached spectrum analyzer charts: Plot 4.1.

<b>Results:</b>	<b>Complies</b>
-----------------	-----------------

Plot 4.1



Comment: Number of hopping channels

Date: 30.MAR.2007 17:11:13

#### 4.5 Average Channel Occupancy Time FCC 15.247(a)(1)(ii)(iii)

##### 4.5.1 Requirement

For systems operating in the 2400-2483.5 MHz band, the average time of occupancy on any channel shall not be greater than 0.4 second within a period of 0.4 second multiplied by the number of hopping channels employed.

##### 4.5.2 Procedure

The spectrum analyzer center frequency was set to one of the known hopping channels, the SPAN was set to ZERO SPANS, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

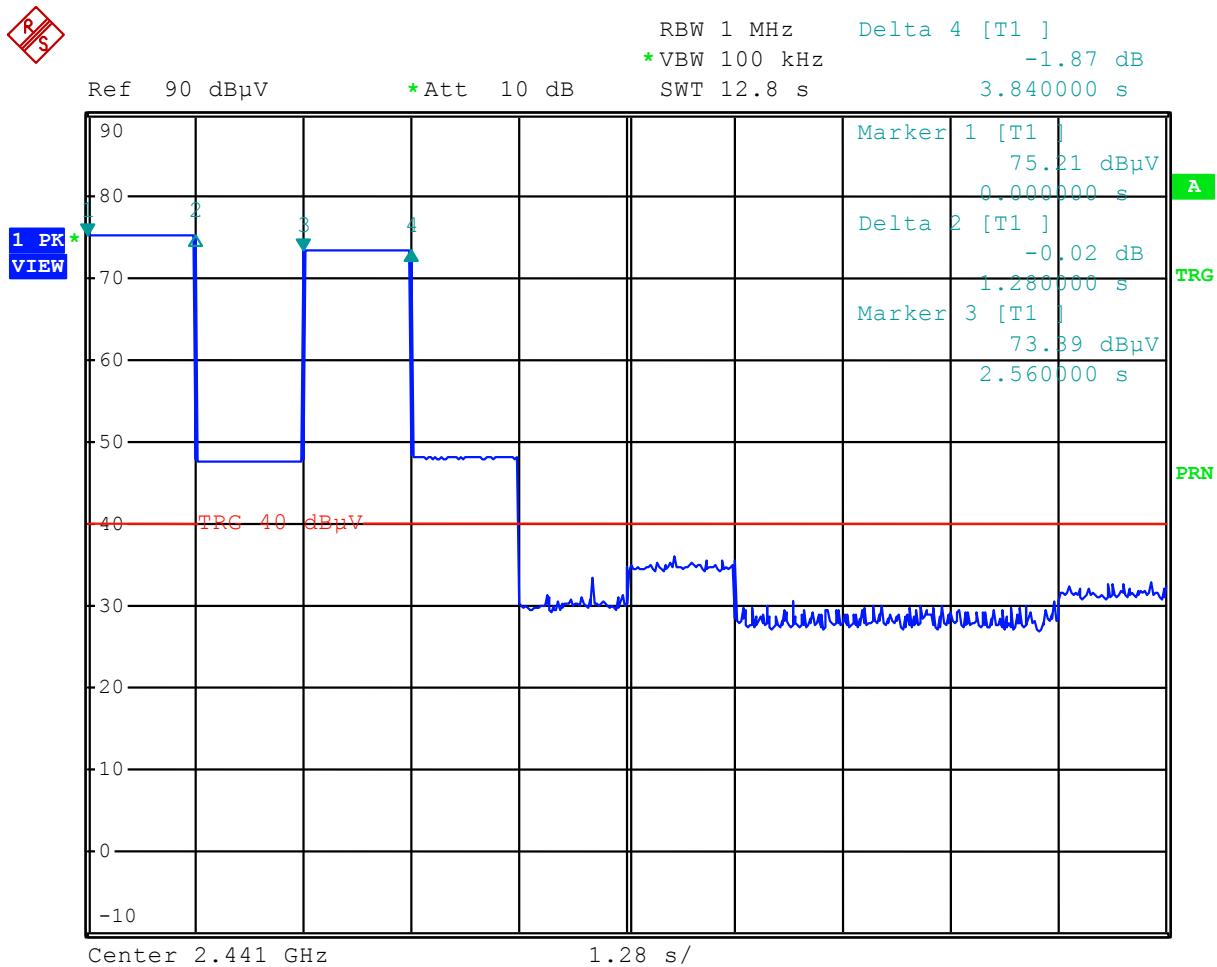
Since the radio is employed 32 hopping channels, the Occupancy Time was calculated for the period of  $0.4 \times 32 = 12.8$  sec.

##### 4.5.3 Test Results

During the time of 12.8 sec the transmission occurs 2 times for 1.28 sec and each time it transmits 0.18 ms each 1.24 ms (duty cycle = 14.5%). Therefore, the dwell time is  $1.28 \times 2 \times 0.145 = 0.37$  sec.

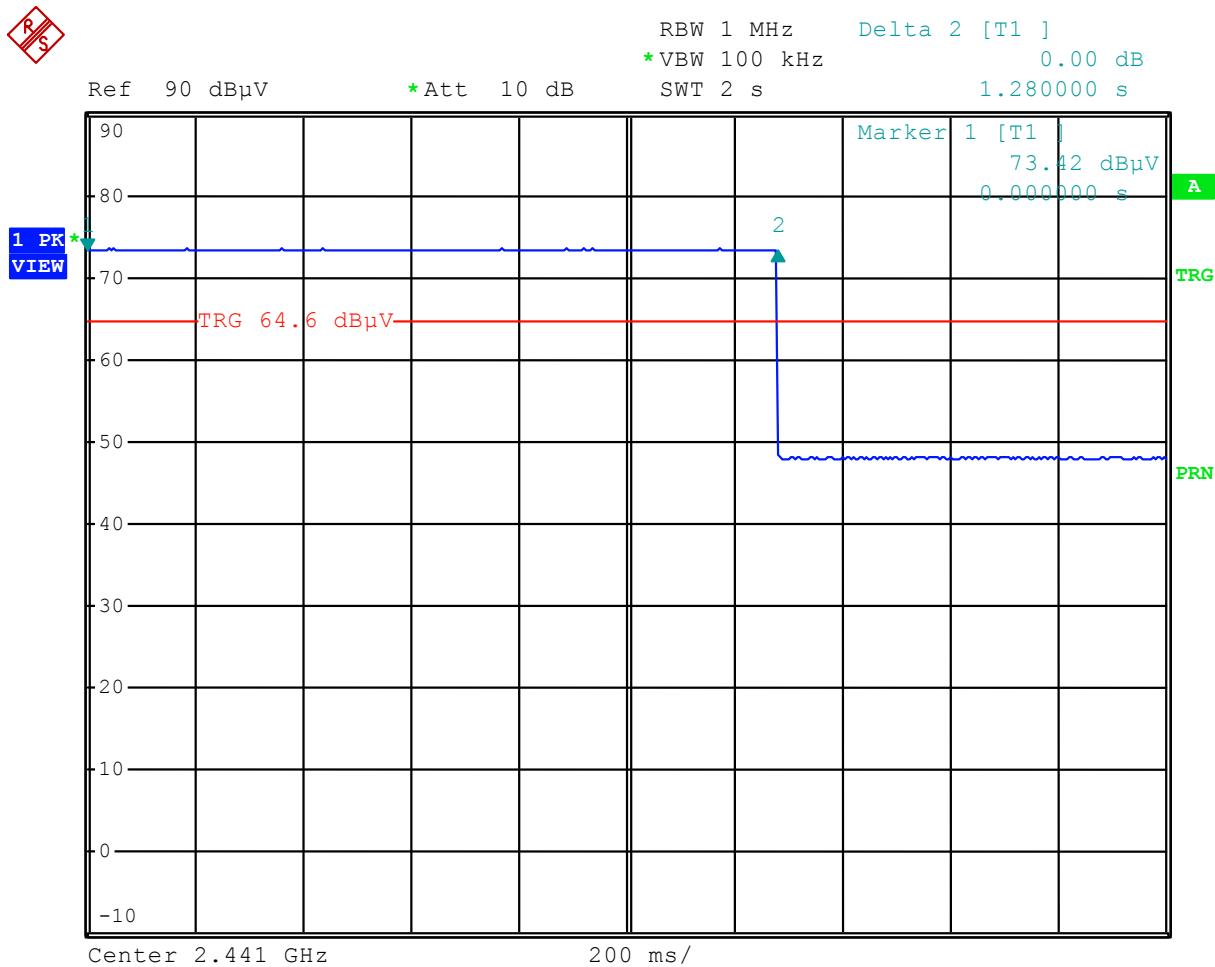
<b>Results:</b>	<b>Complies</b>
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Plot 5.1



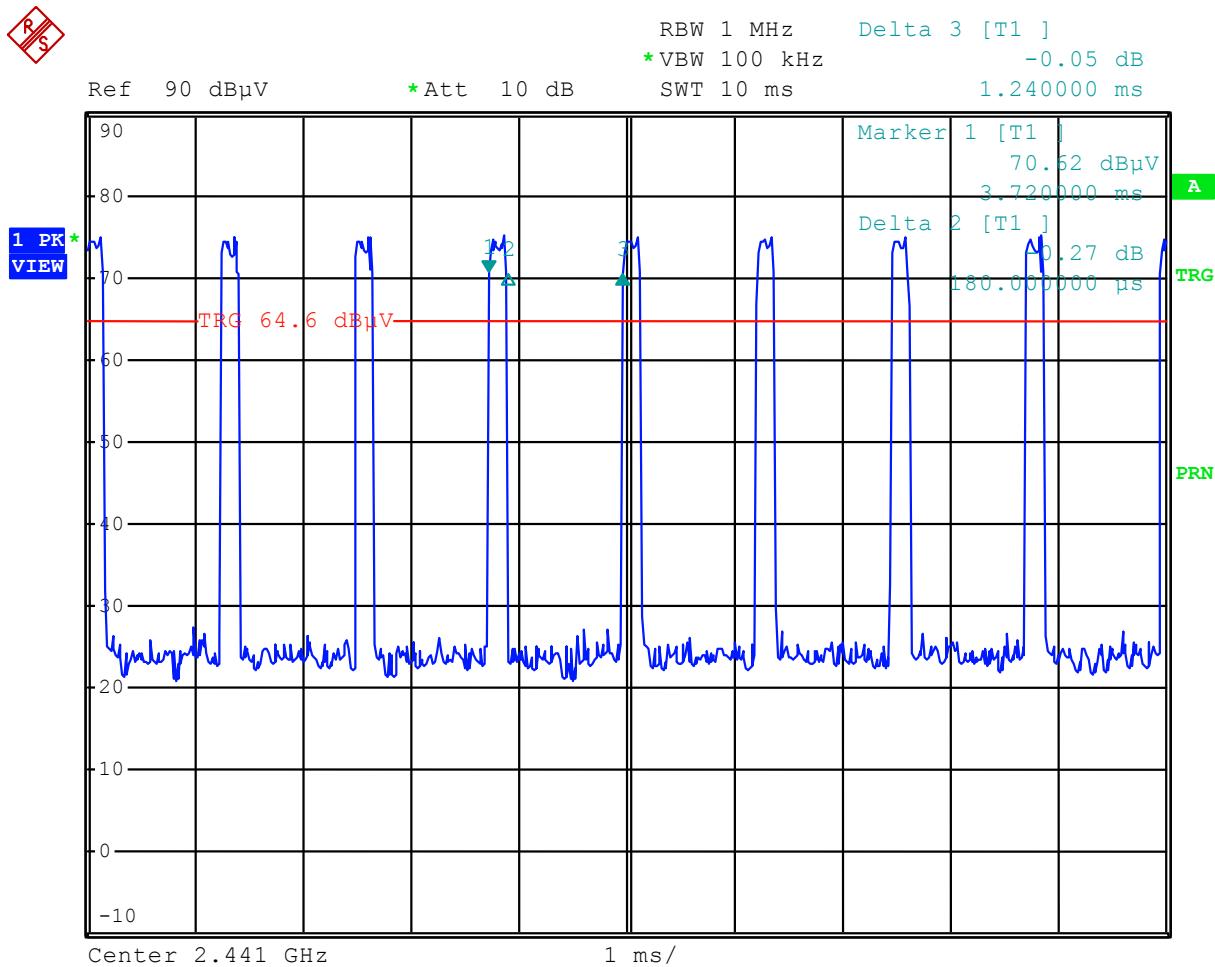
Comment: Dwell time  
Date: 30.MAR.2007 13:21:54

Plot 5.2



Comment: Dwell time  
 Date: 30.MAR.2007 13:27:21

Plot 5.3



Comment: Dwell time  
Date: 30.MAR.2007 13:32:25

#### 4.6 Transmitter Out-of Band and Spurious Radiated Emissions FCC 15.247(d)

##### 4.6.1 Requirement

In any 100 kHz bandwidth outside the EUT pass-band, the RF power shall be at least 20 dB below that of the maximum in-band 100 kHz emission.

In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits specified in 15.209.

##### 4.6.2 Procedure

Below 1 GHz radiated Out-of-band emissions were measured at 3 m distance. Above 1 GHz radiated Out-of-band emissions (except emissions in the restricted bands) were measured with the horn antenna setup in a close proximity to the EUT.

Analyzer Resolution Bandwidth was set to 100 kHz except for measurements above 1 GHz in the restricted bands where the Resolution Bandwidth was set to 1 MHz.

For each channel investigated, the in-band and out-of-band emissions were measured from 30 MHz to 25 GHz.

The EUT is placed on a non-conductive table. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

##### Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where FS = Field Strength in dB( $\mu$ V/m)

RA = Receiver Amplitude (including preamplifier) in dB( $\mu$ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dB( $\mu$ V) is obtained. The antennas factor of 7.4 dB(1/m) and cable factor of

1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB( $\mu$ V/m). This value in dB( $\mu$ V/m) was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB( $\mu$ V)

AF = 7.4 dB(1/m)

CF = 1.6 dB

AG = 29.0 dB

FS =  $52.0 + 7.4 + 1.6 - 29.0 = 32$  dB( $\mu$ V/m)

Level in  $\mu$ V/m = Common Antilogarithm  $[(32 \text{ dB}\mu\text{V}/\text{m})/20] = 39.8 \mu\text{V}/\text{m}$

#### 4.6.3 Test Result

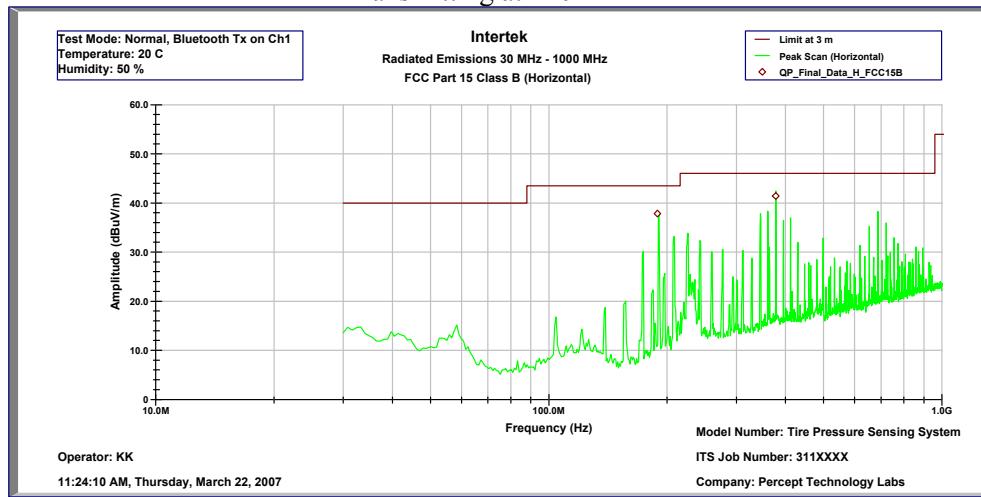
Refer to the following plots for the test result:

Description	Comments	Plot number
Radiated Emissions below 1 GHz, F=2402 MHz	Measured at 3 m distance	6.1
Radiated Emissions below 1 GHz, F=2441 MHz	Measured at 3 m distance	6.2
Radiated Emissions below 1 GHz, F=2480 MHz	Measured at 3 m distance	6.3
Radiated Emissions above 1 GHz, F=2402 MHz, scan 1-2.43 GHz	Measured in a close proximity	6.4
Radiated Emissions above 1 GHz, F=2402 MHz, scan 2.4835-25 GHz	Measured in a close proximity	6.5
Radiated Emissions above 1 GHz, F=2441 MHz, scan 1-2.4 GHz	Measured in a close proximity	6.6
Radiated Emissions above 1 GHz, F=2441 MHz, scan 2.4835-25 GHz	Measured in a close proximity	6.7
Radiated Emissions above 1 GHz, F=2480 MHz, scan 1-2.4 GHz	Measured in a close proximity	6.8
Radiated Emissions above 1 GHz, F=2480 MHz, scan 2.45-5 GHz	Measured in a close proximity	6.9
Radiated Emissions above 1 GHz, F=2480 MHz, scan 2.4835-25 GHz	Measured in a close proximity	6.10
Radiated Emissions above 1 GHz, hopping mode, scan 1-2.4 GHz	Measured in a close proximity	6.11
Radiated Emissions above 1 GHz, hopping mode, scan 2.4835-5 GHz	Measured in a close proximity	6.12
Radiated Emissions above 1 GHz, hopping mode, scan 5-25 GHz	Measured in a close proximity	6.13
Radiated Emissions above 1 GHz in restricted bands, all channels	Measured at 3 m distance	Table 6.1
Radiated Emissions above 1 GHz in restricted band 2.31-2.39 GHz, F=2402 MHz	Measured at 3 m distance, average *	6.14
Radiated Emissions above 1 GHz in restricted band 2.31-2.39 GHz, F=2402 MHz	Measured at 3 m distance, peak *	6.15
Radiated Emissions above 1 GHz in restricted band 2.4835-2.5 GHz, F=2480 MHz	Measured at 3 m distance, average *	6.16
Radiated Emissions above 1 GHz in restricted band 2.4835-2.5 GHz, F=2480 MHz	Measured at 3 m distance, peak *	6.17

\* On the plots 6.14 – 6.17, emissions were maximized at the 2.39 GHz and 2.4835 GHz respectively. The antenna factor and cable loss are included in the reference level OFFSET. The Marker Readings on the plots are the final Field Strength measurements at 3 m. The Duty Cycle correction factor is not included on plot 6.16.

<b>Results:</b>	<b>Complies by 3.3 dB</b>
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Plot 6.1  
Transmitting at 2402 MHz



Radiated Emissions 30 MHz - 1000 MHz  
FCC Part 15 Class B (QP-Horizontal)

Operator: KK  
11:24:10 AM, Thursday, March 22, 2007

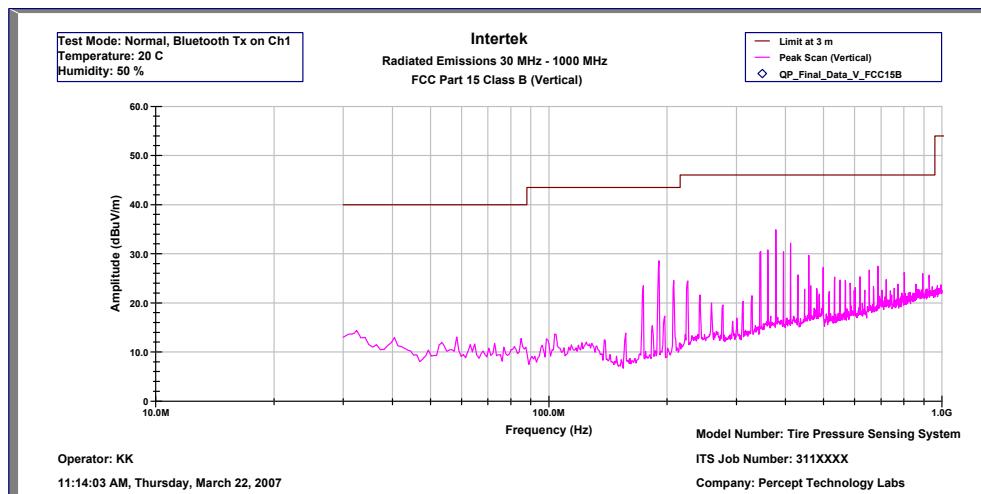
Model Number: Tire Pressure Sensing System  
Company: Percept Technology Labs

Frequency	Quasi Pk FS	Limit@3m	Margin	RA	AG	CF	AF	Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
189.0	37.8	43.5	-5.7	53.6	31.2	1.9	10.5	3.0
377.9	41.4	46.0	-4.6	50.9	31.2	2.9	15.8	3.0

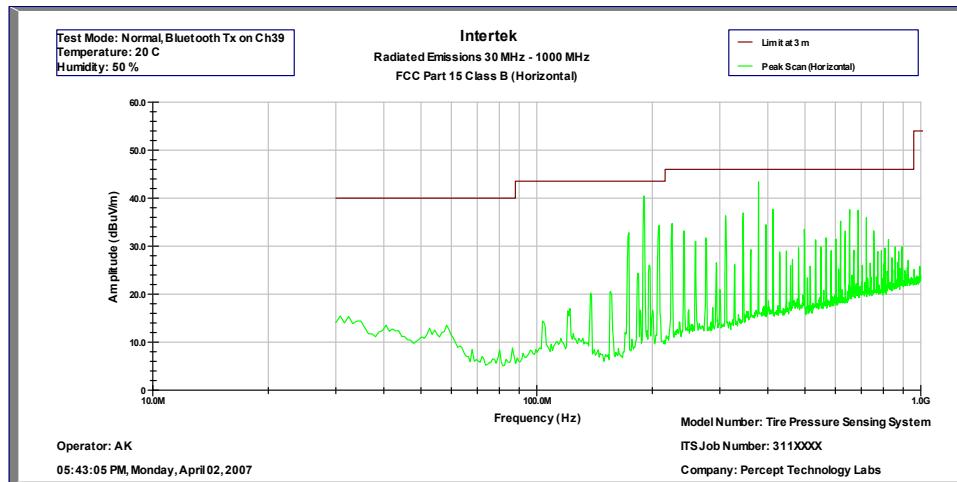
Test Mode: Normal, Bluetooth Tx on Ch1

Temperature: 20 C

Humidity: 50 %



Plot 6.2  
Transmitting at 2441 MHz



Radiated Emissions 30 MHz - 1000 MHz  
FCC Part 15 Class B (QP-Horizontal)

Operator: KK

05:43:13 PM, Monday, April 02, 2007

Model Number: Tire Pressure Sensing System

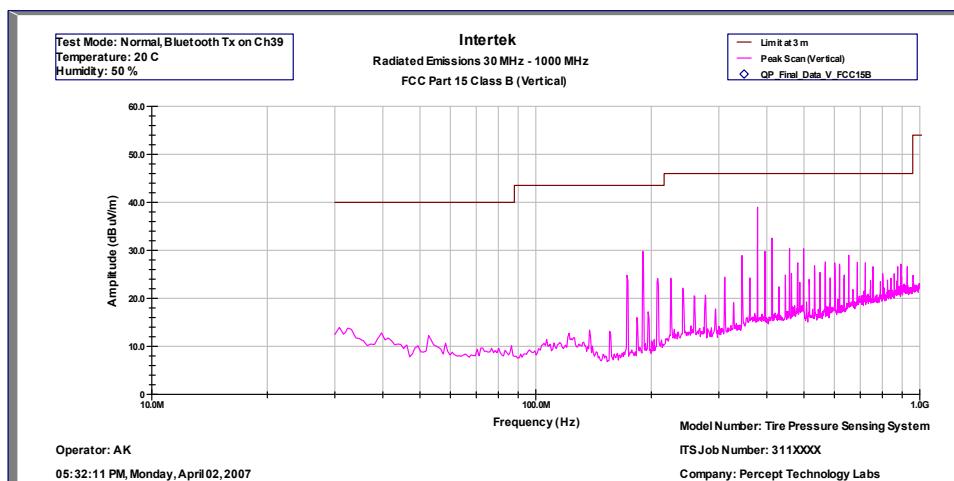
Company: Percept Technology Labs

Frequency	QP FS	Limit@3m	Margin	RA	AG	CF	AF	Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
189.0	39,7	43,5	-3,8	54,9	31,2	2,0	10,9	3,0
377.9	42,7	46,0	-3,3	51,9	31,2	3,1	15,9	3,0

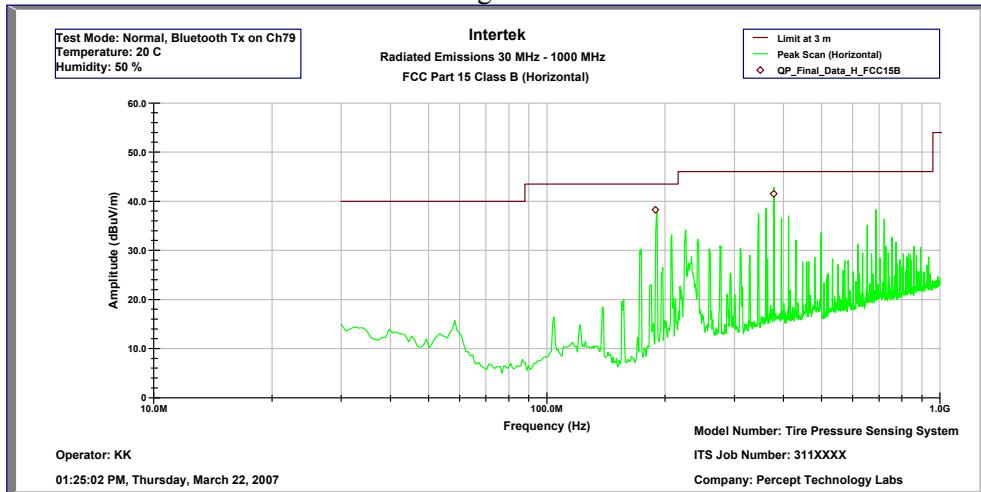
Test Mode: Normal, Bluetooth Tx on Ch1

Temperature: 20 C

Humidity: 50 %



Plot 6.3  
Transmitting at 2480 MHz



Radiated Emissions 30 MHz - 1000 MHz  
FCC Part 15 Class B (QP-Horizontal)

Operator: KK

Model Number: Tire Pressure Sensing System

01:25:02 PM, Thursday, March 22, 2007

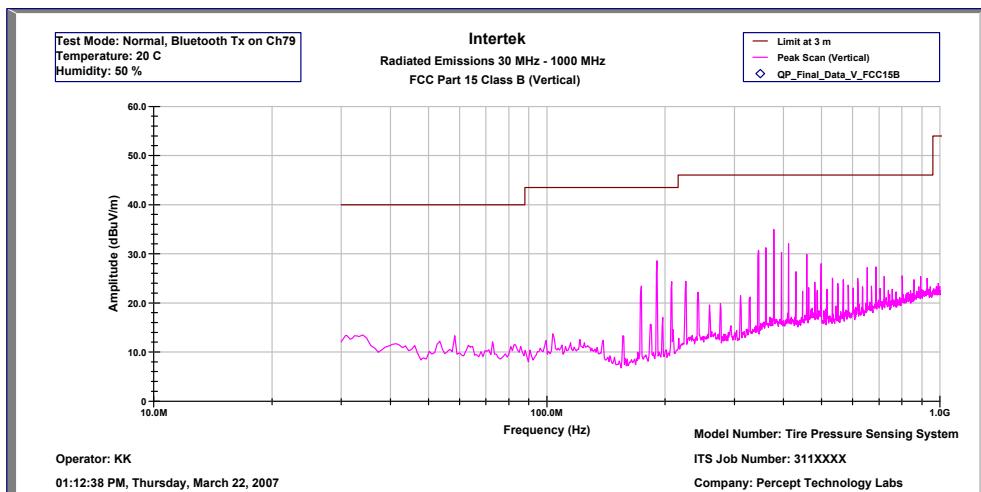
Company: Percept Technology Labs

Frequency	Quasi Pk FS	Limit@3m	Margin	RA	AG	CF	AF	Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
189.0	38.2	43.5	-5.3	54.0	31.2	1.9	10.5	3.0
377.9	41.5	46.0	-4.5	51.0	31.2	2.9	15.8	3.0

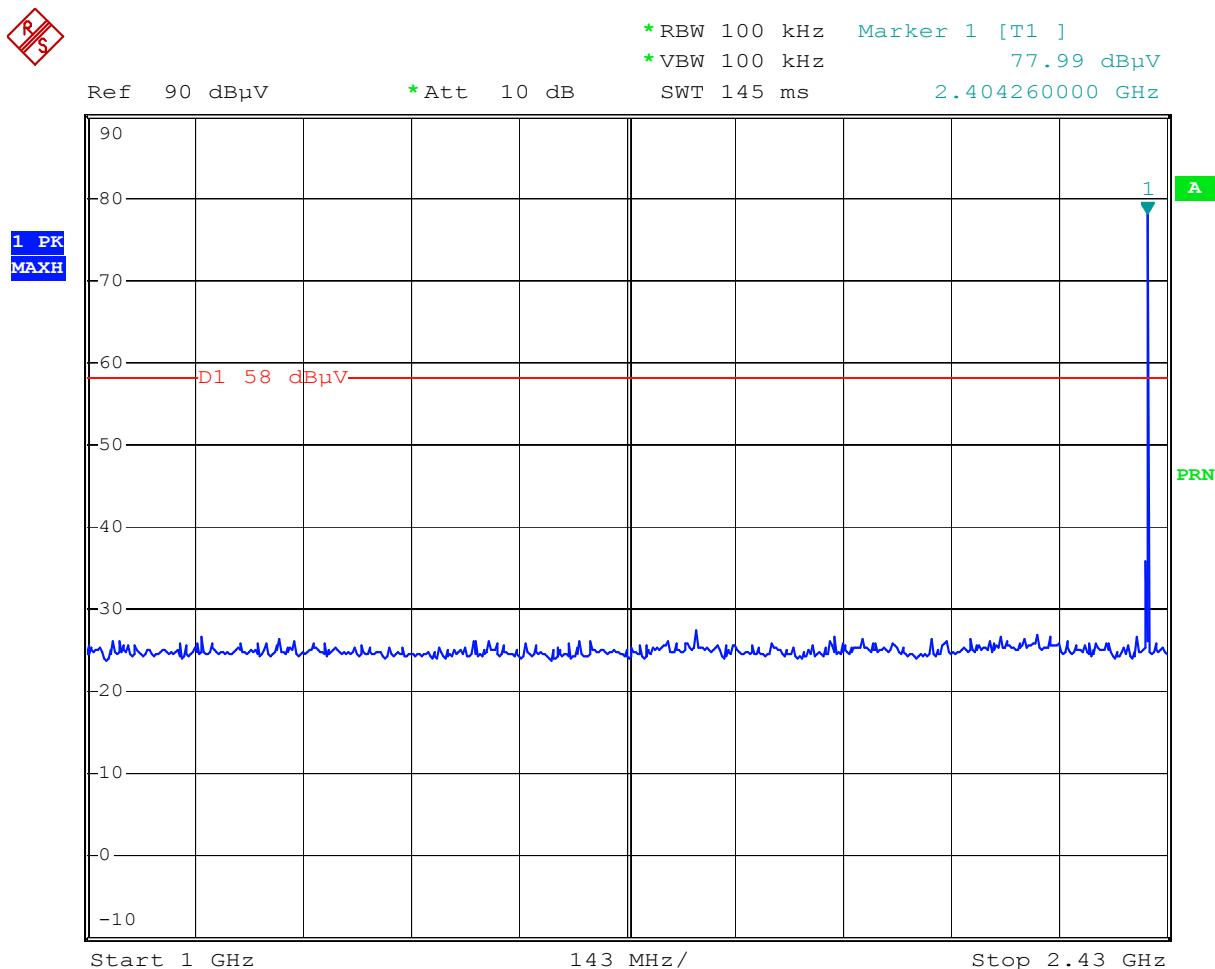
Test Mode: Normal, Bluetooth Tx on Ch79

Temperature: 20 C

Humidity: 50 %



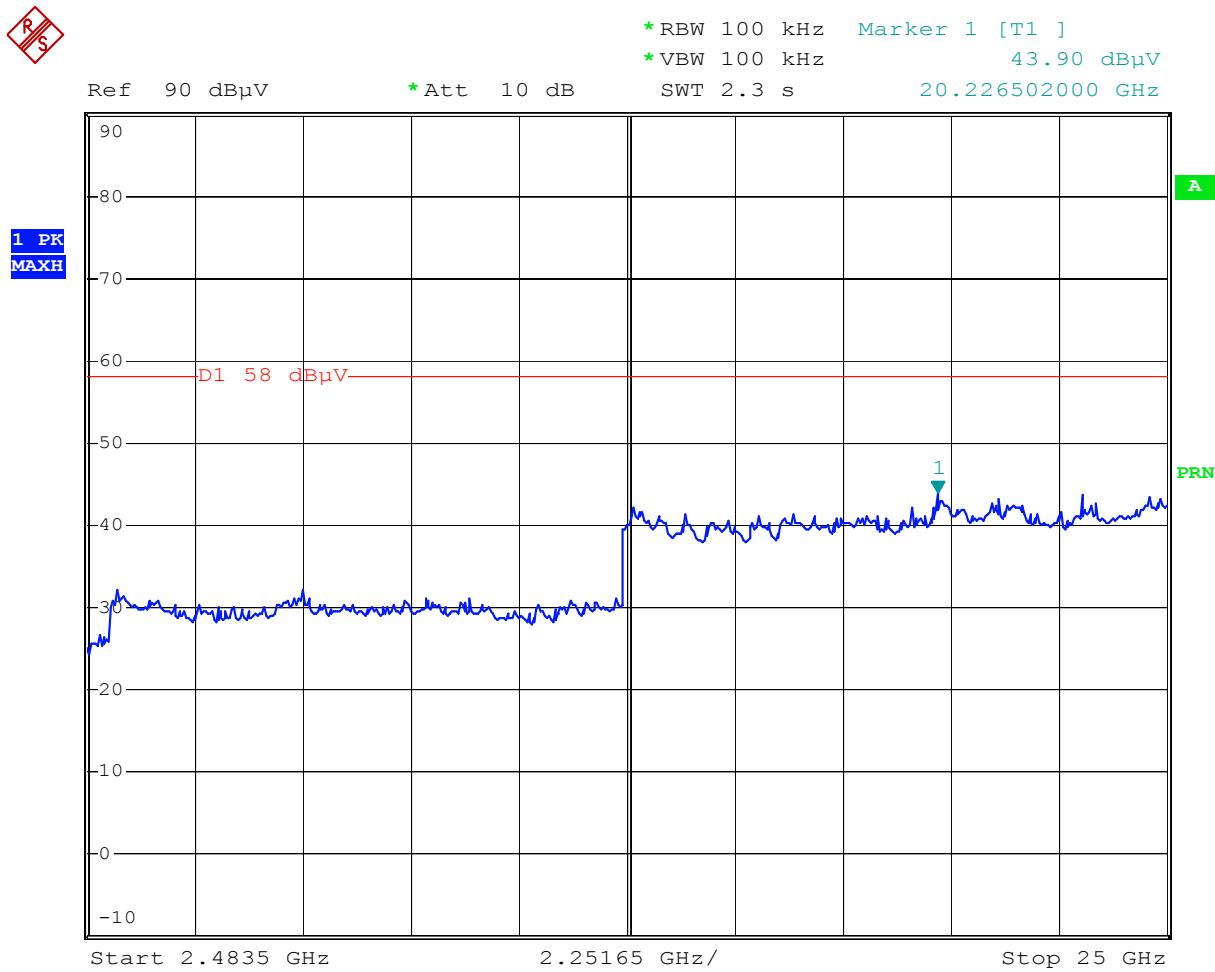
Plot 6.4



Comment: Out-of-band emissions, f=2402 MHz

Date: 4.APR.2007 19:58:52

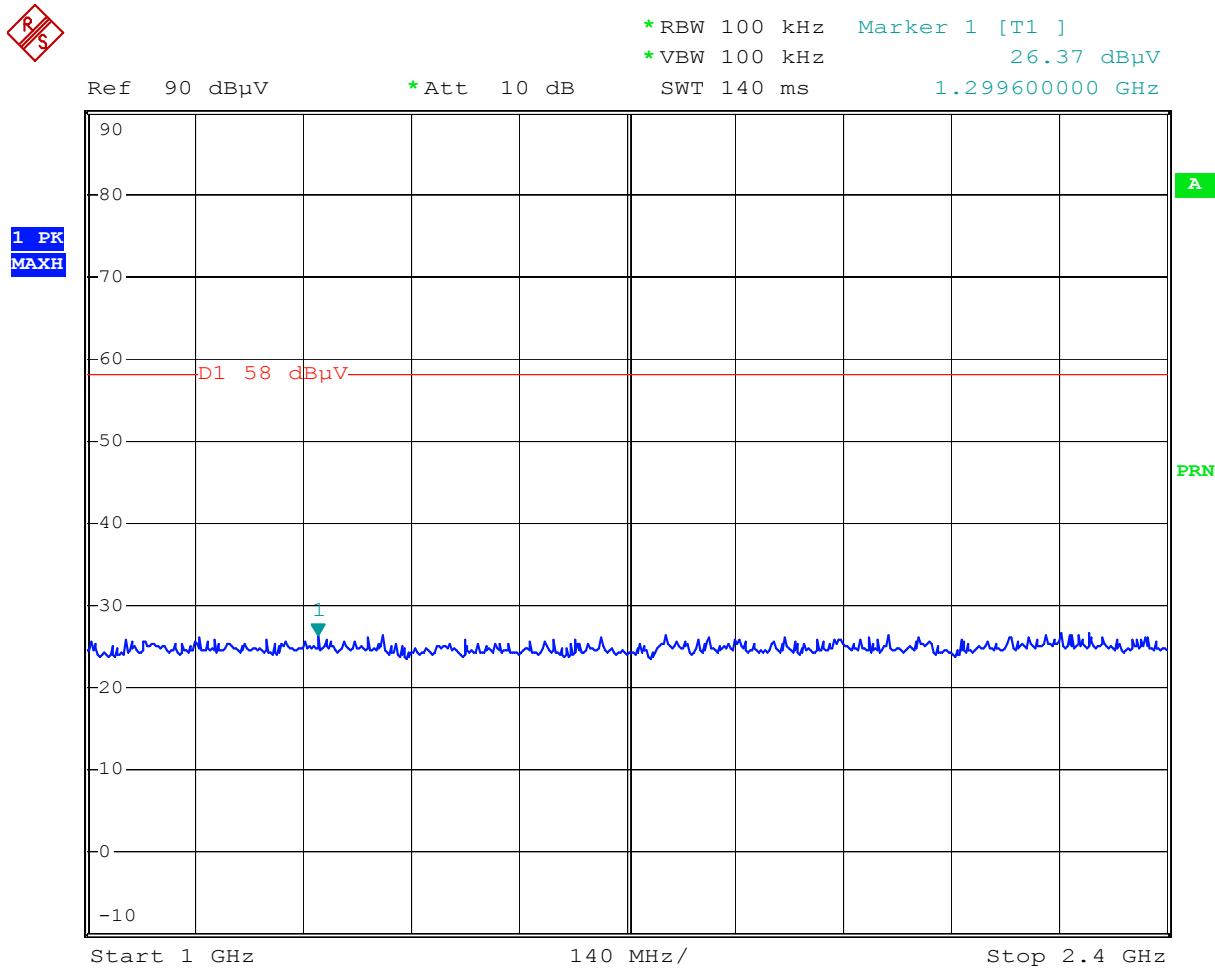
Plot 6.5



Comment: Out-of-band emissions, f=2402 MHz

Date: 4.APR.2007 20:00:43

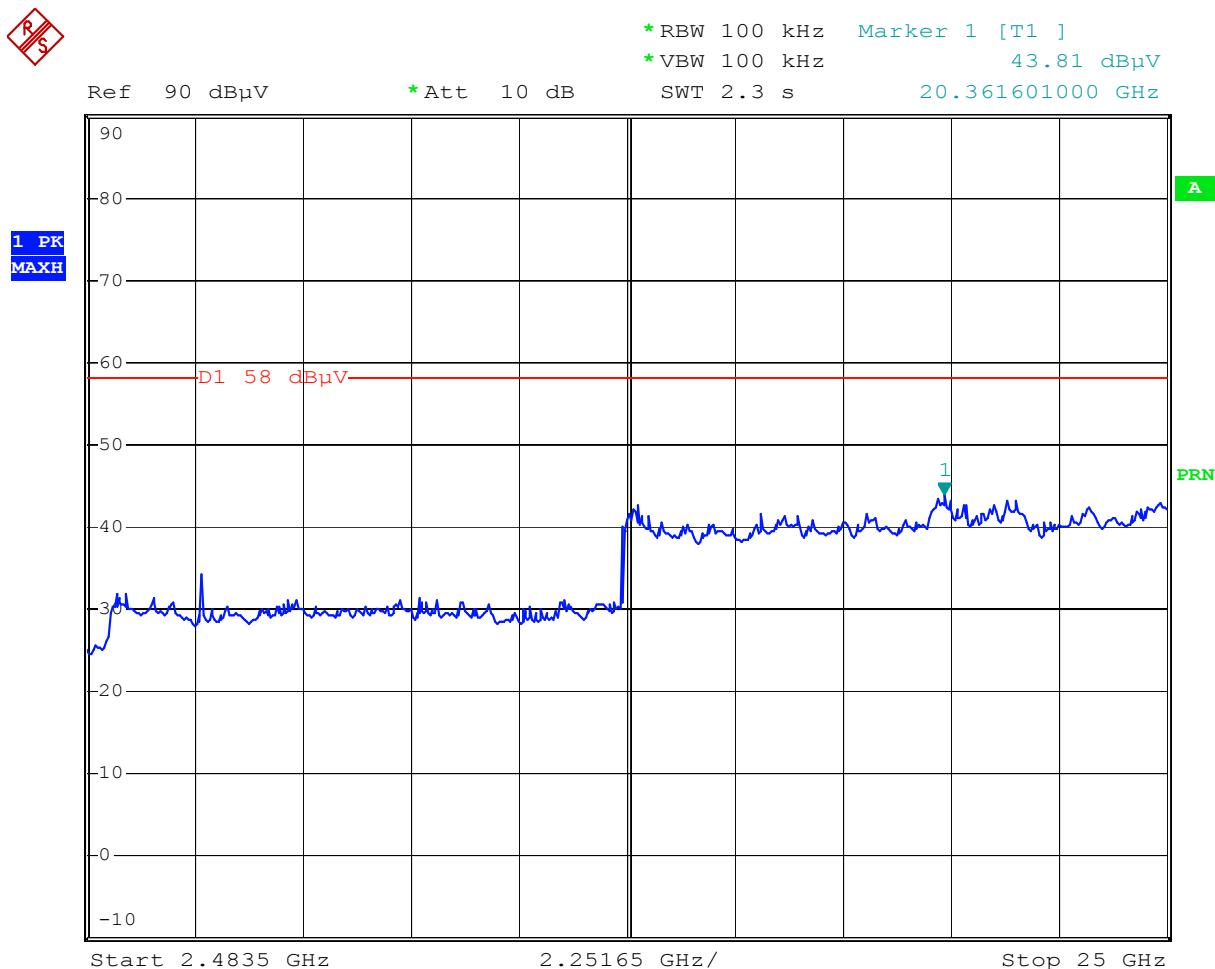
Plot 6.6



Comment: Out-of-band emissions, f=2441 MHz

Date: 4.APR.2007 20:05:41

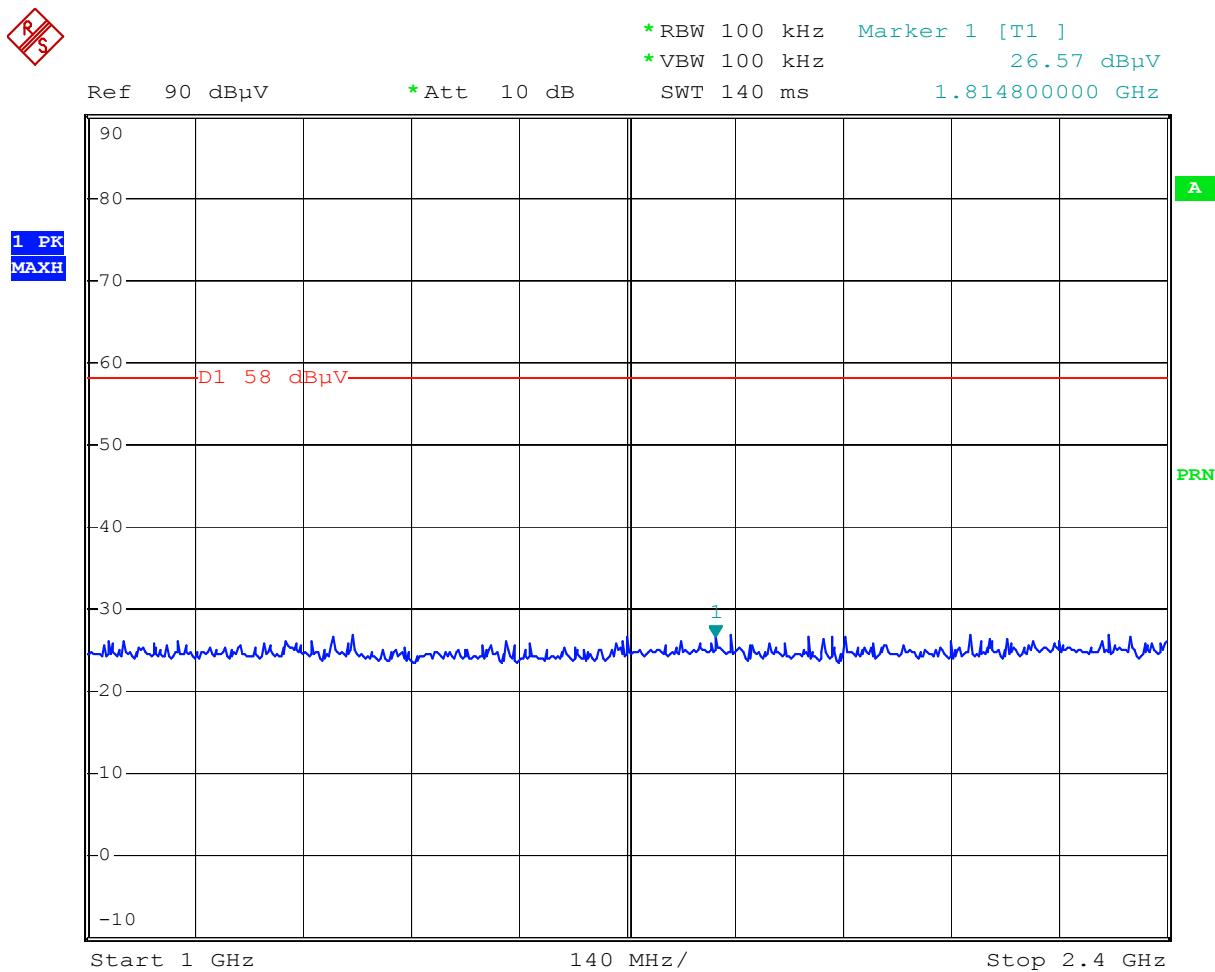
Plot 6.7



Comment: Out-of-band emissions, f=2441 MHz

Date: 4.APR.2007 20:06:56

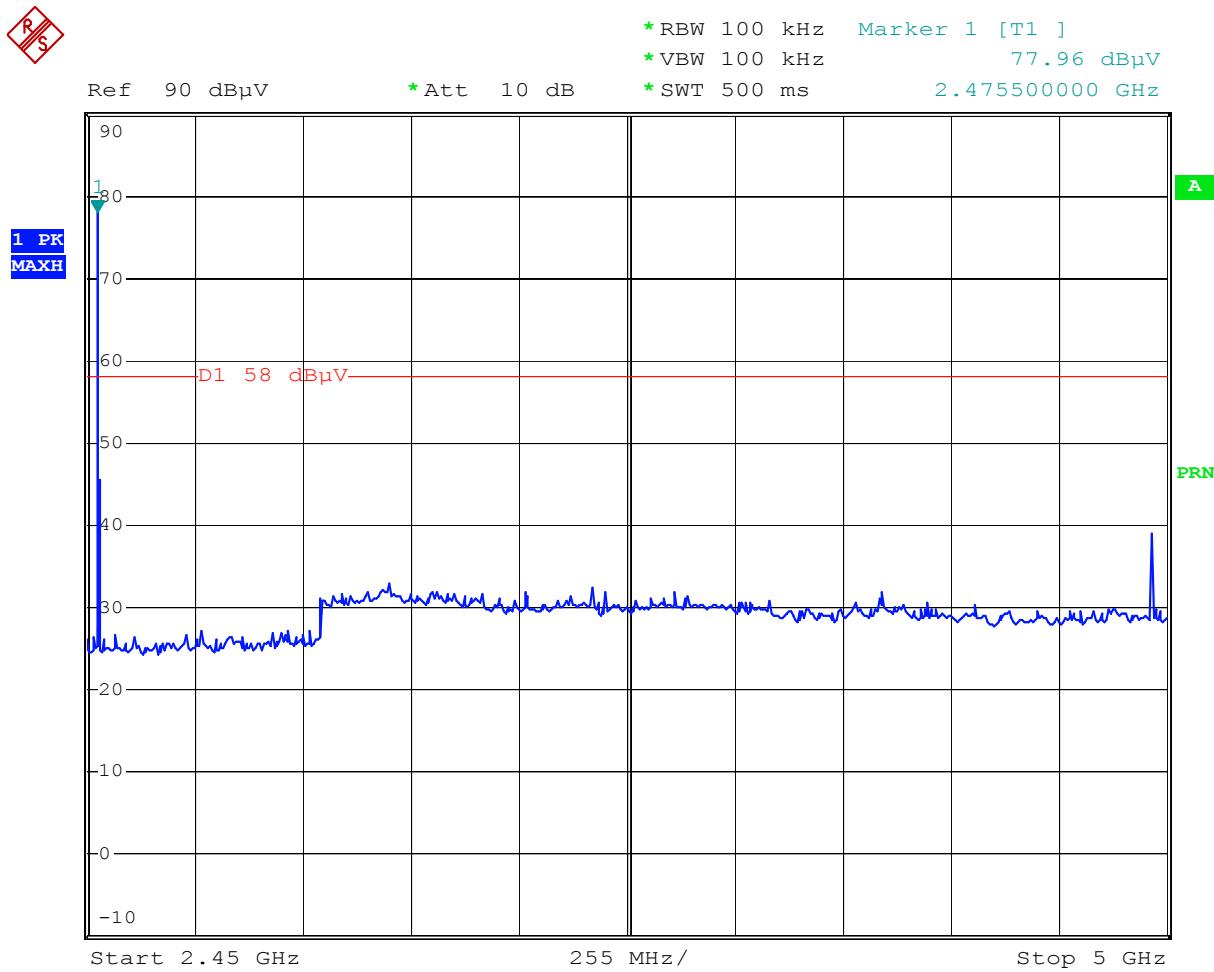
Plot 6.8



Comment: Out-of-band emissions, f=2480 MHz

Date: 4.APR.2007 20:09:52

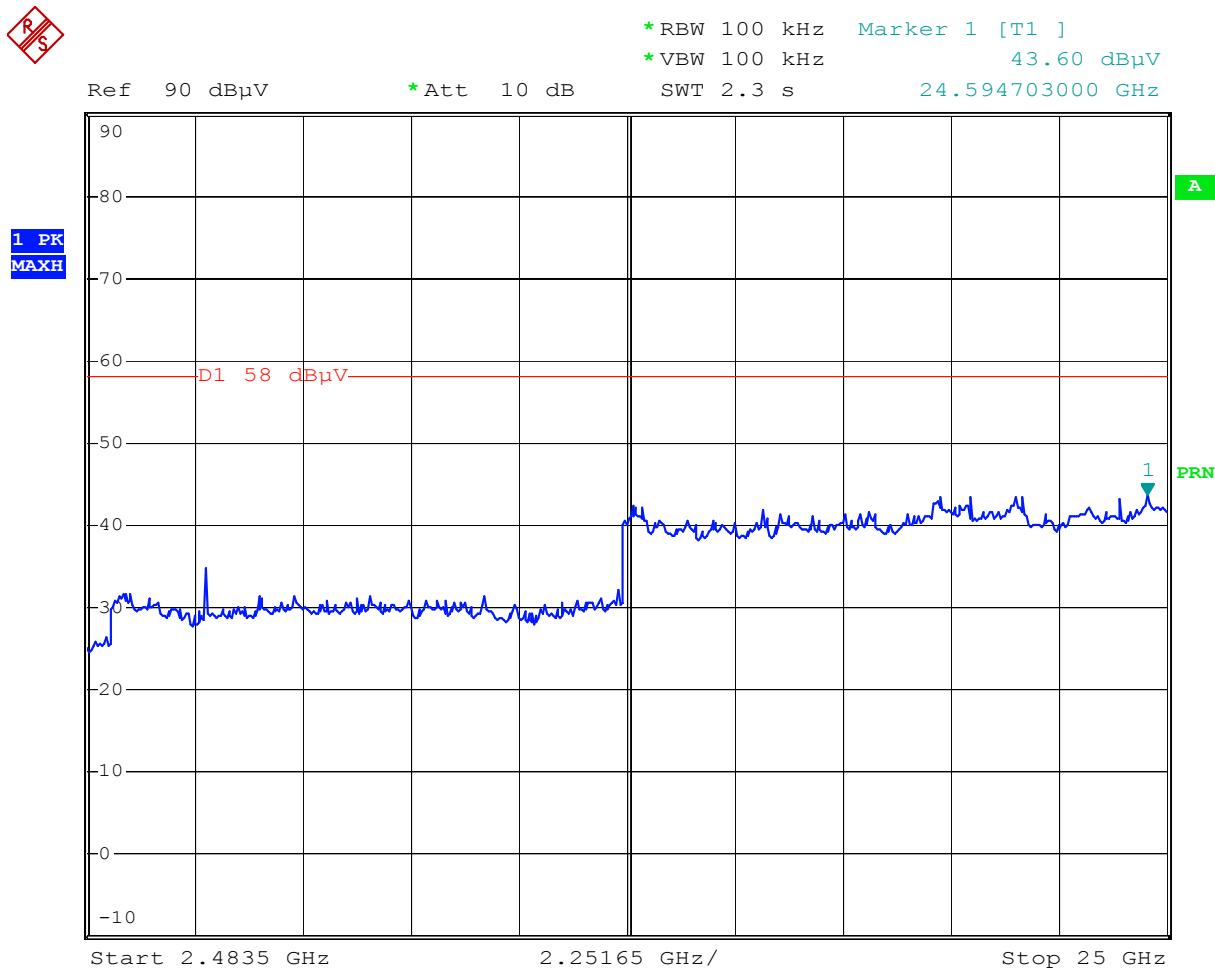
Plot 6.9



Comment: Out-of-band emissions, f=2480 MHz

Date: 4.APR.2007 19:27:55

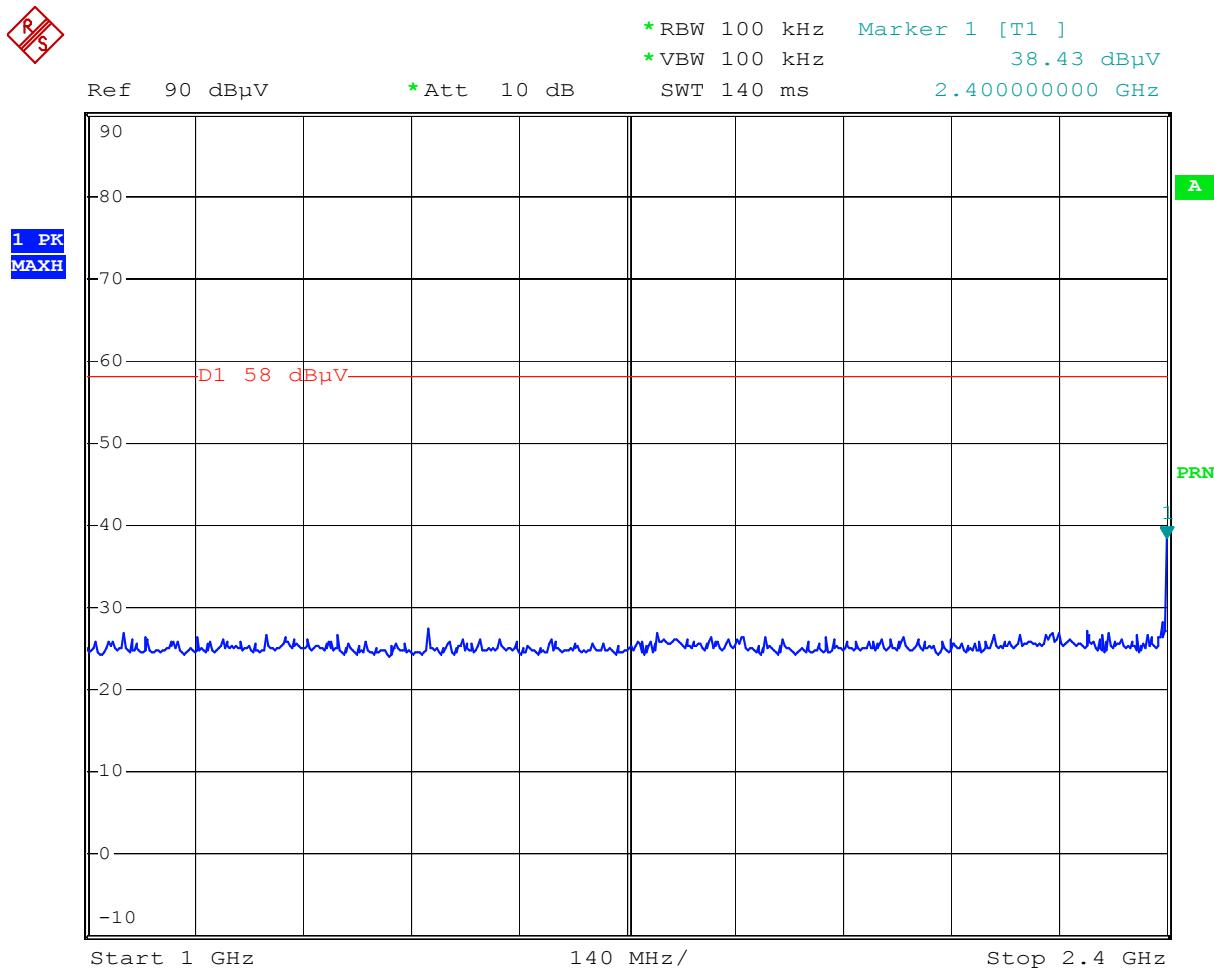
Plot 6.10



Comment: Out-of-band emissions, f=2480 MHz

Date: 4.APR.2007 20:12:04

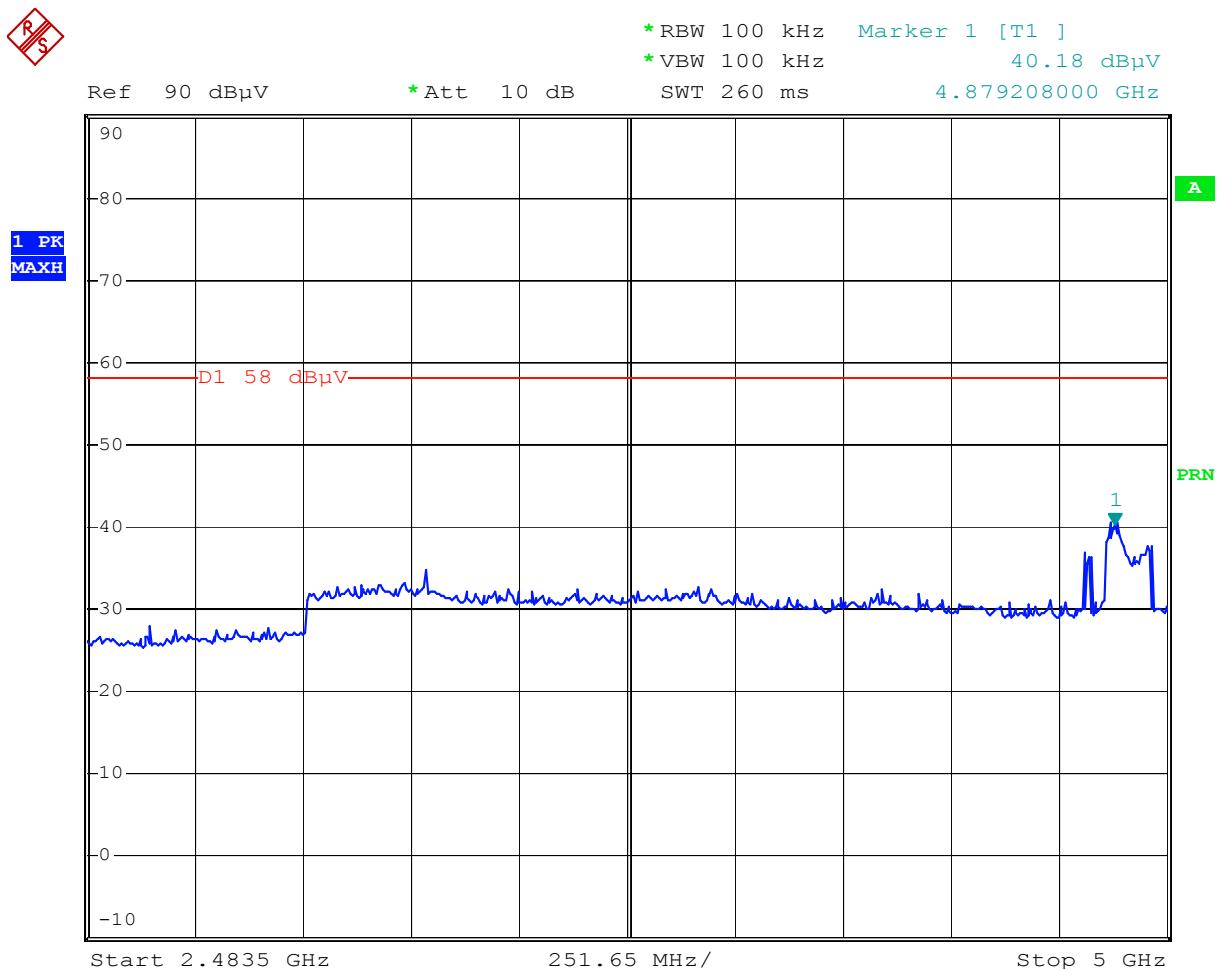
Plot 6.11



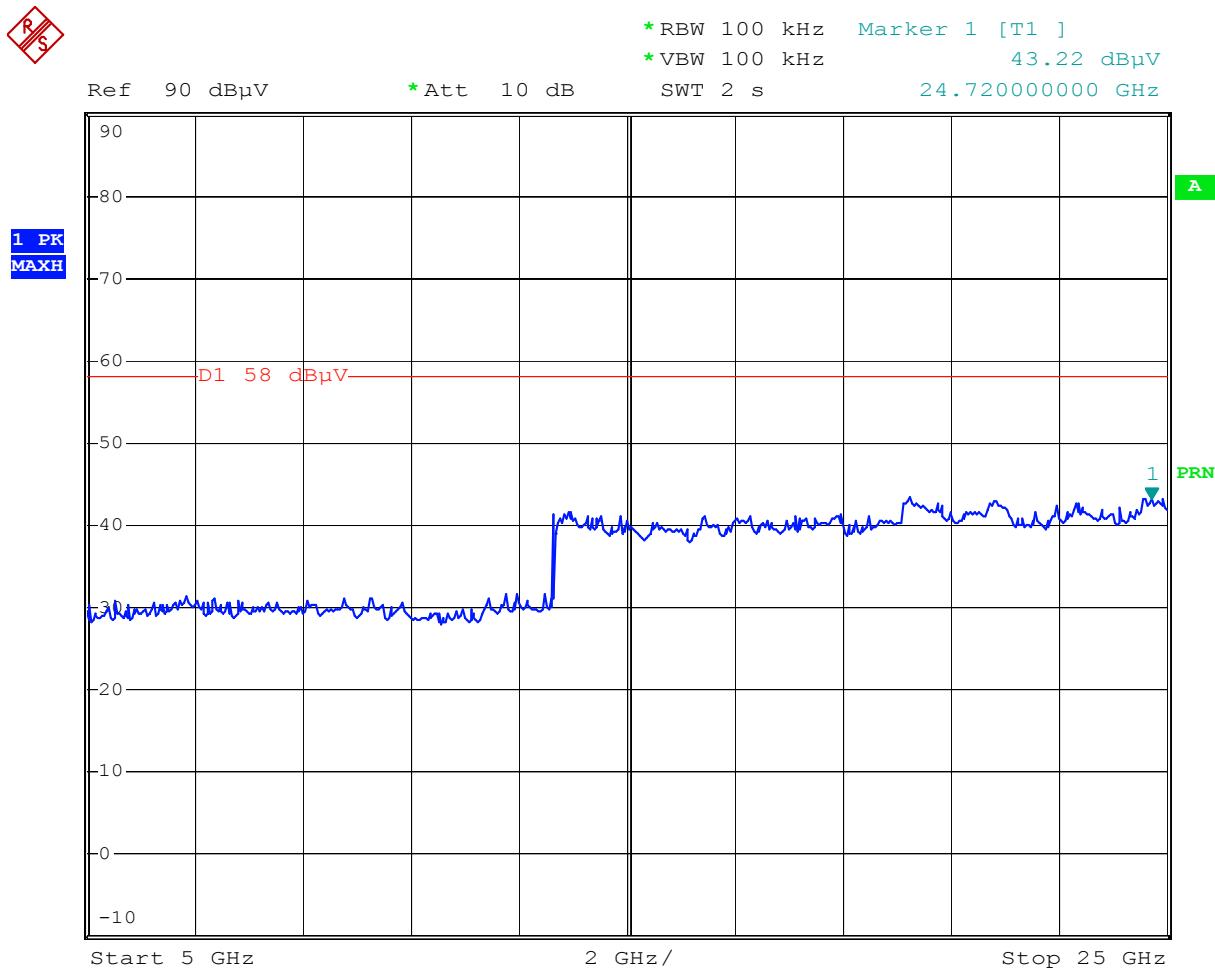
Comment: Out-of-band emissions, hopping mode

Date: 4.APR.2007 19:54:27

Plot 6.12



Plot 6.13



Comment: Out-of-band emissions, hopping mode

Date: 4.APR.2007 19:52:06

**Table 6.1: Radiated Emissions above 1 GHz in restricted bands**

Temperature: 20.0 C	Company: Percept Technology Labs
Humidity: 50.0 %	Model: 83-005-01
Date: March 28 and 29, 2007	Engineer: AK/KK
	Test distance: 3 m

Frequency	Polarity	Detector	SA reading	AG**	Ant factor	DC correction	Field Strength	Limit	Margin
MHz			dB (uV)	dB	dB(1/m)	dB	dB(uV/m)	dB(uV/m)	dB
<b>Tx at 2402 MHz</b>									
4804.0	H	Pk	58.8	31.3	33.9		61.4	74.0	-12.6
4804.0	H	Av	57.5	31.3	33.9	-16.8	43.3	54.0	-10.7
7206.0	H	Pk	39.8	29.9	37.0		46.9	74.0	-27.1
7206.0	H	Av	26.2	29.9	37.0	-	33.3	54.0	-20.7
9608.0	H	Pk	41.2	28.8	39.0		51.4	74.0	-22.6
9608.0	H	Av	36.5	28.8	39.0	-16.8	29.9	54.0	-24.1
12010.0	H/V	Pk	37.3*	28.2	39.2		48.3	74.0	-25.7
12010.0	H/V	Av	23.6*	28.2	39.2	-	34.6	54.0	-19.4

Frequency	Polarity	Detector	SA reading	AG**	Ant factor	DC correction	Field Strength	Limit	Margin
MHz			dB (uV)	dB	dB(1/m)	dB	dB(uV/m)	dB(uV/m)	dB
<b>Tx at 2441 MHz</b>									
4882.0	H	Pk	61.2	31.5	34.1		63.8	74.0	-10.2
4882.0	H	Av	60.4	31.5	34.1	-16.8	46.2	54.0	-7.2
7323.0	V	Pk	42.1	29.9	37.3		49.5	74.0	-24.5
7323.0	V	Av	29.2	29.9	37.3	-	36.6	54.0	-17.4
9764.0	V	Pk	45.3	27.5	39.1		56.9	74.0	-17.1
9764.0	V	Av	37.4	27.5	39.1	-16.8	32.2	54.0	-21.8
12205.0	H/V	Pk	36.1*	25.9	39.2		49.4	74.0	-24.6
12205.0	H/V	Av	22.7*	25.9	39.2	-	36.0	54.0	-18.0

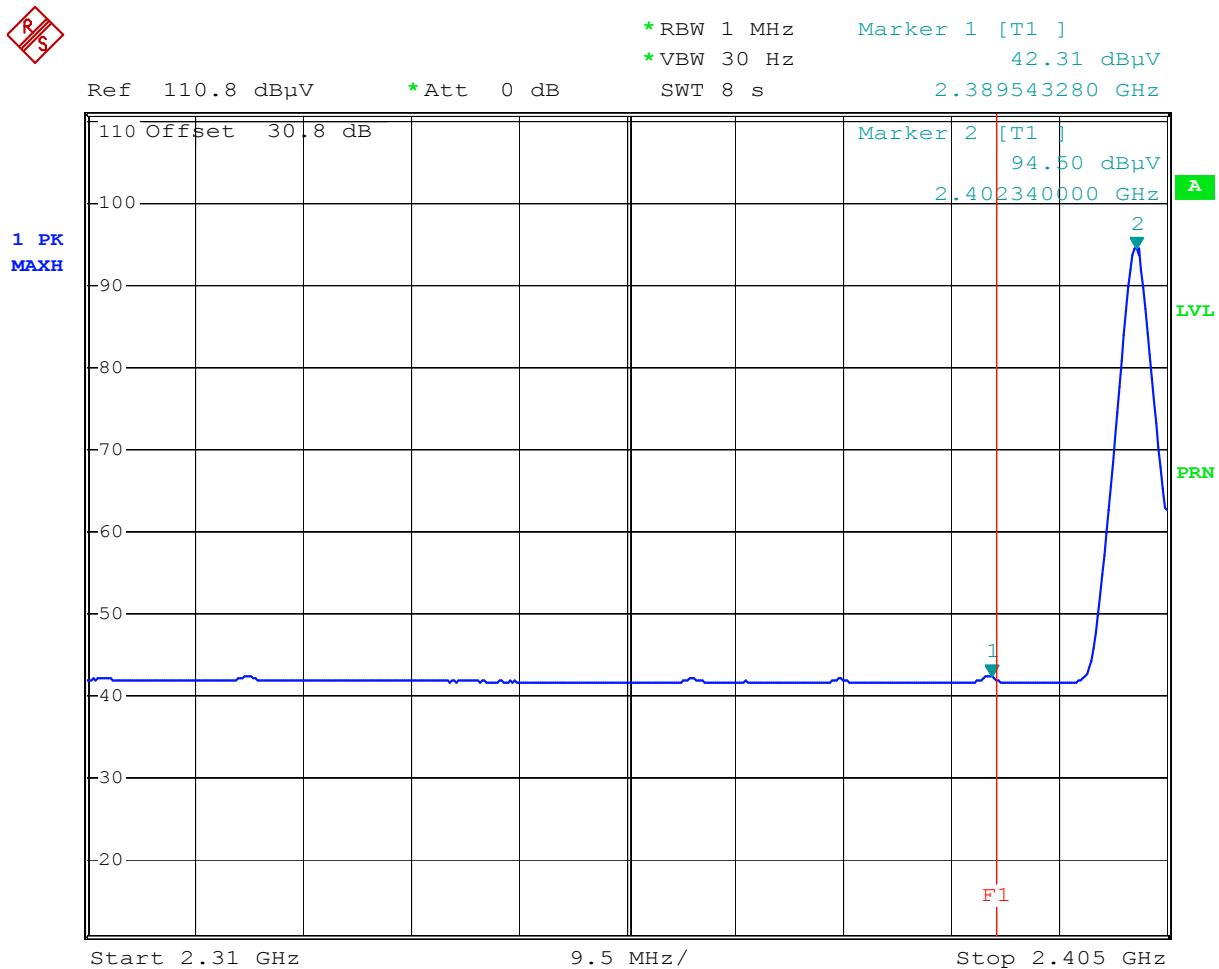
Frequency	Polarity	Detector	SA reading	AG**	Ant factor	DC correction	Field Strength	Limit	Margin
MHz			dB (uV)	dB	dB(1/m)	dB	dB(uV/m)	dB(uV/m)	dB
<b>Tx at 2480 MHz</b>									
4960.0	H	Pk	57.8	31.5	34.4		60.7	74.0	-13.3
4960.0	H	Av	55.3	31.5	34.4	-16.8	41.4	54.0	-12.6
7440.0	V	Pk	38.2	29.9	37.7		46.0	74.0	-28.0
7440.0	V	Av	26.3	29.9	37.7	-	34.1	54.0	-19.9
9920.0	V	Pk	46.1	27.5	39.1		57.7	74.0	-16.3
9920.0	V	Av	42.4	27.5	39.1	-16.8	37.2	54.0	-16.8
12400.0	H/V	Pk	36.4*	25.9	39.1		49.6	74.0	-24.4
12400.0	H/V	Av	23.0*	25.9	39.1	-	36.2	54.0	-17.8

\* Noise Floor measurements

\*\*AG – Amplifier Gain includes Cable loss

DC – Duty Cycle

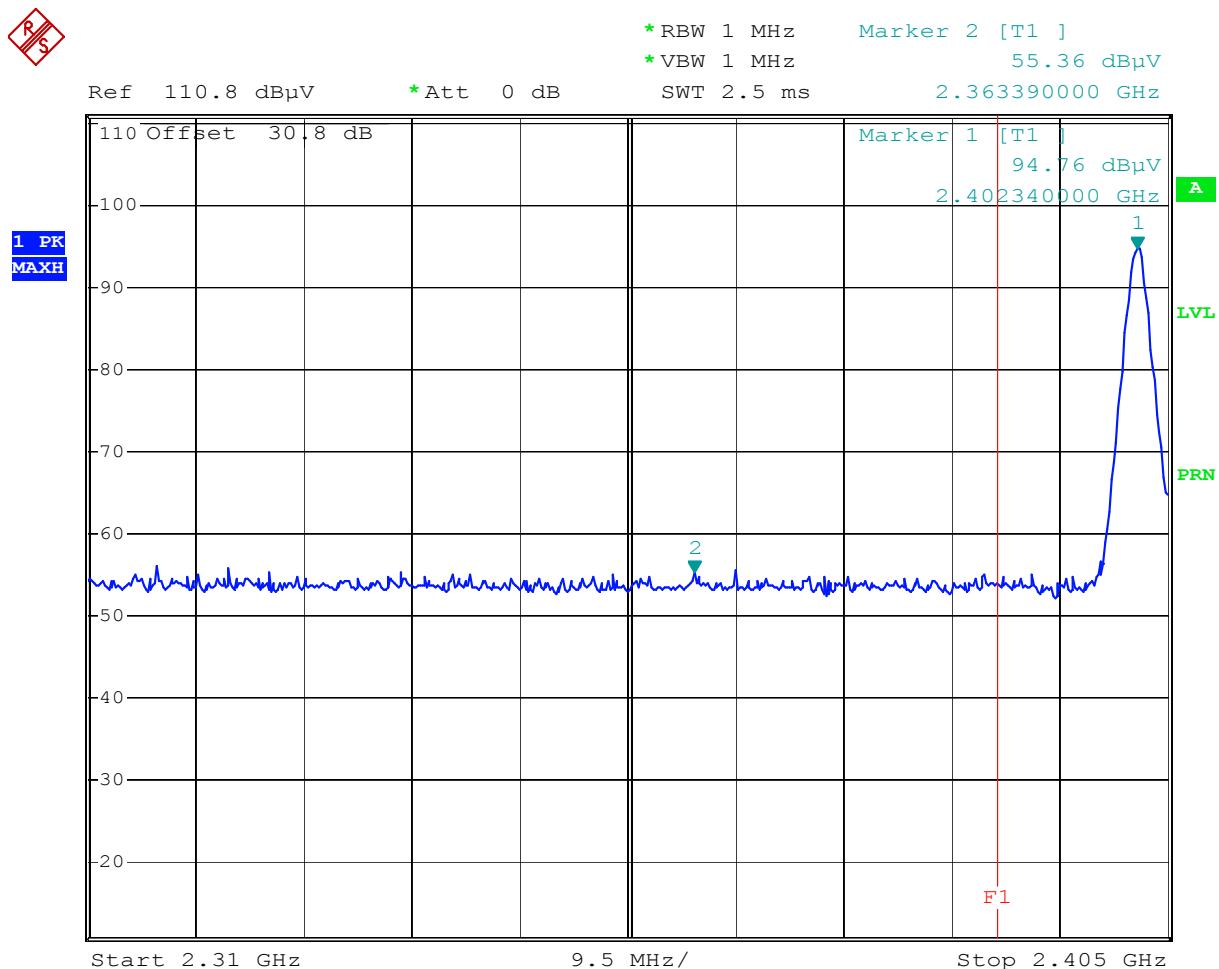
Plot 6.14



Comment: Band-edge compliance, average  
 Date: 28.MAR.2007 17:43:08

Additional comment: On this plot, antenna factor and cable loss are included in the reference level OFFSET function; therefore, the Marker Readings are the final Field Strength (FS) measurements at 3 m distance.

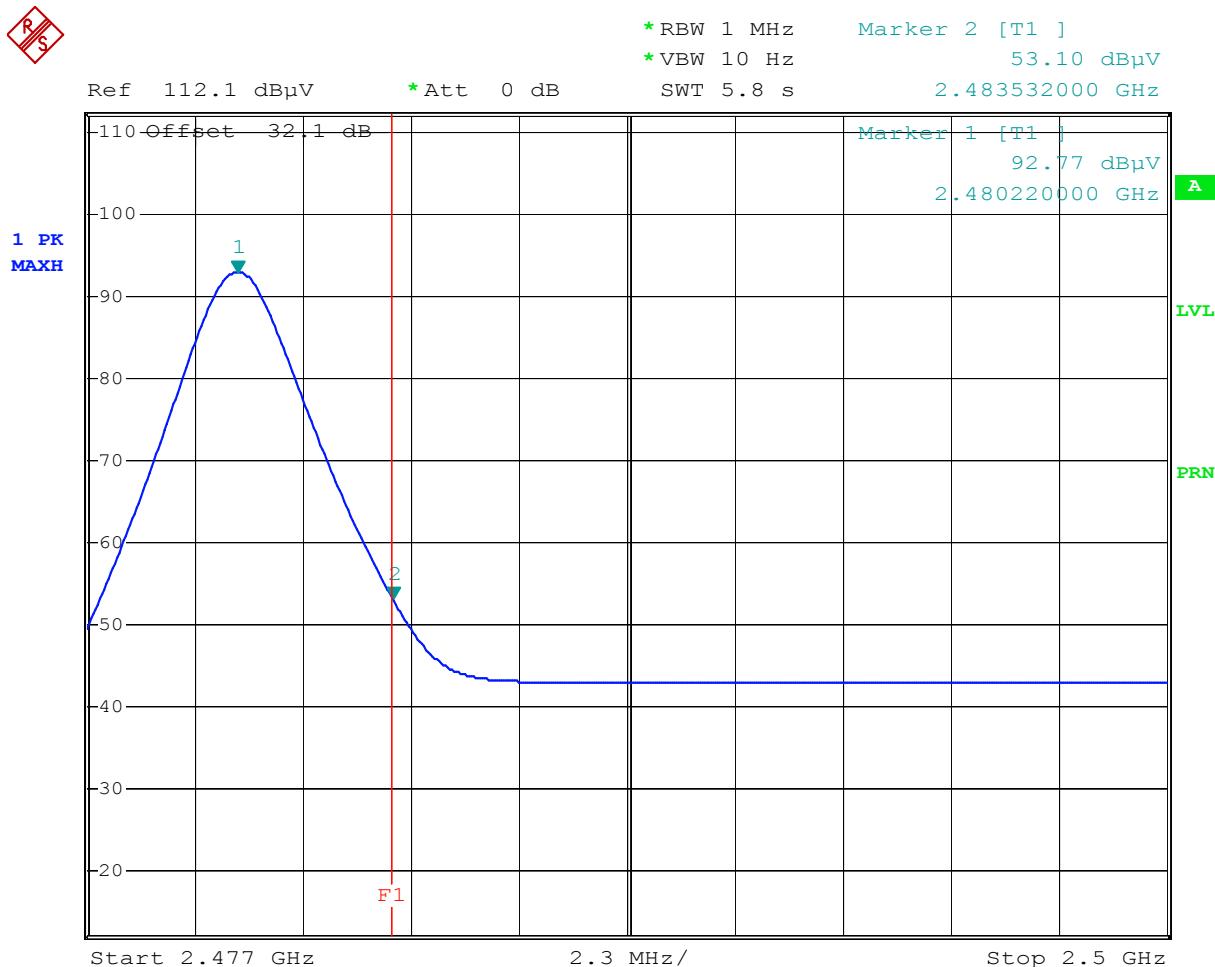
Plot 6.15



Comment: Band-edge compliance, peak  
 Date: 28.MAR.2007 17:45:31

Additional comment: On this plot, antenna factor and cable loss are included in the reference level OFFSET function; therefore, the Marker Readings are the final Field Strength (FS) measurements at 3 m distance.

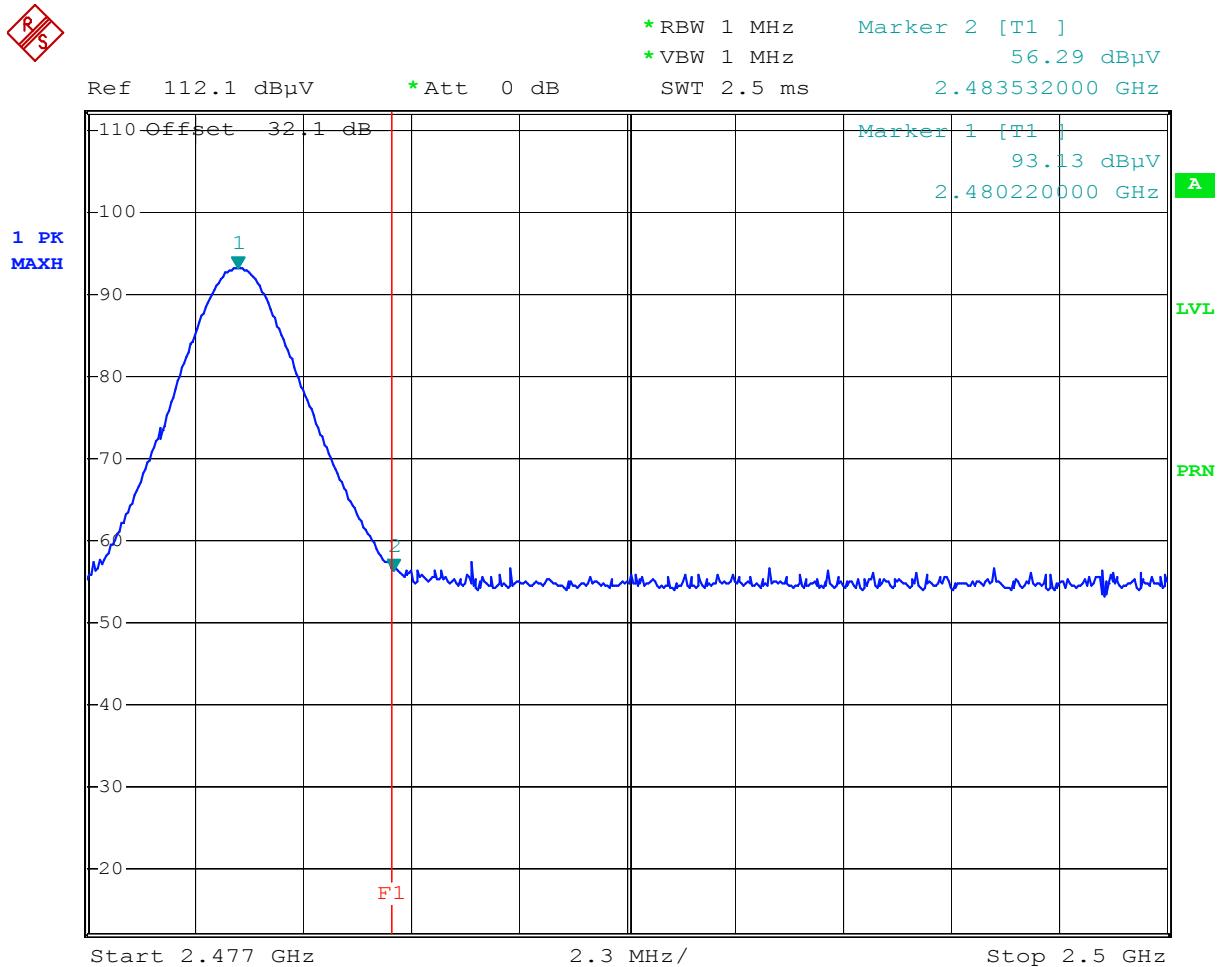
Plot 6.16



Comment: Band-edge compliance, average  
 Date: 28.MAR.2007 18:01:51

Additional comment: On this plot, antenna factor and cable loss are included in the reference level OFFSET function; therefore, the Marker Readings are the final Field Strength (FS) measurements at 3 m distance. The Duty Cycle Correction Factor (DCCF) for average is not included. Considering the DCCF of -16.8 dB, the average FS is well below the limit of 54 dB(uV/m).

Plot 6.17



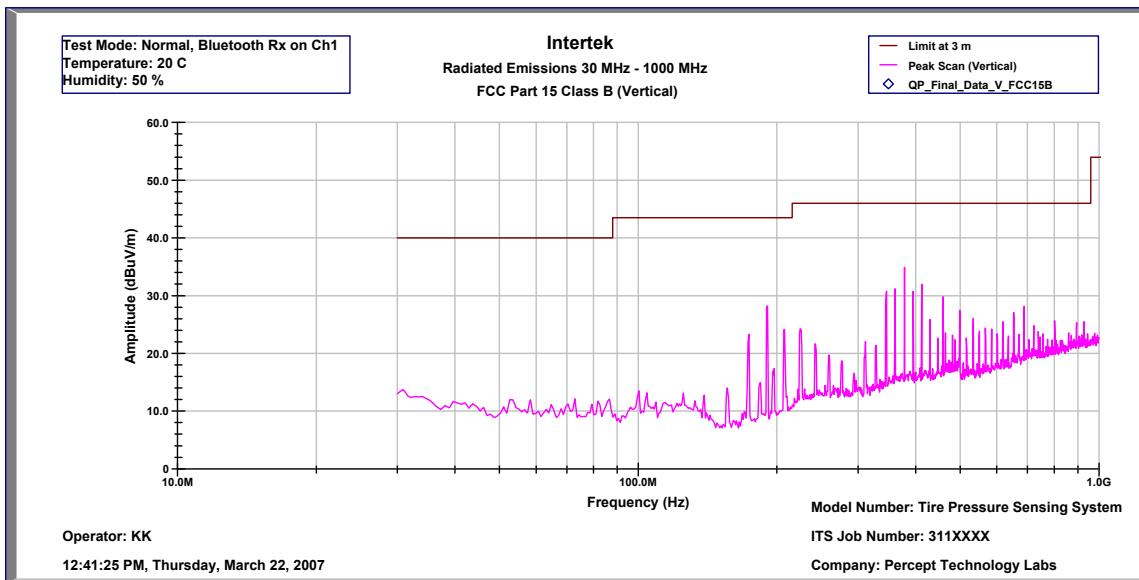
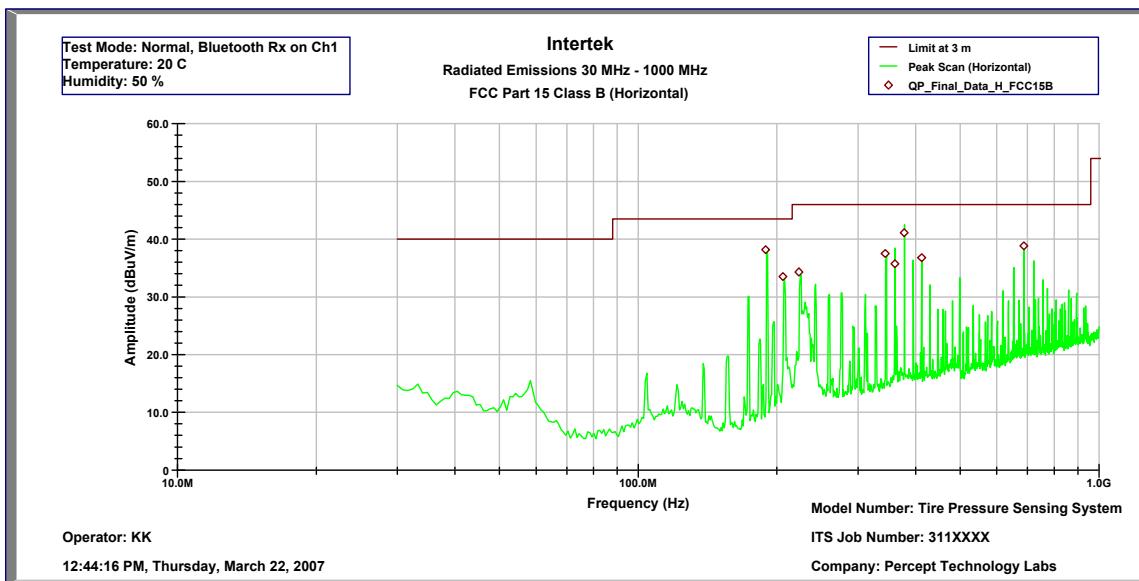
Additional comment: On this plot, antenna factor and cable loss are included in the reference level OFFSET function; therefore, the Marker Readings are the final Field Strength (FS) measurements at 3 m distance.



4.7 Radiated Emissions from Digital Parts and Receiver  
FCC Ref: 15.109

Radiated emission measurements were performed from 30 MHz to 7500 MHz. Spectrum Analyzer Resolution Bandwidth is 100 kHz or greater below 1000 MHz and 1 MHz above 1000 MHz. Test results are attached.

<b>Results:</b>	<b>Complies by 4.9 dB</b>
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Intertek

Radiated Emissions 30 MHz - 1000 MHz

FCC Part 15 Class B (QP-Horizontal)

Operator: KK

12:44:16 PM, Thursday, March 22, 2007

Model Number: Tire Pressure Sensing System

Company: Percept Technology Labs

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@3m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	CF dB	AF dB(1/m)	Atten dB
188.97	38.2	43.5	-5.3	53.9	31.2	1.9	10.5	3.0
206.15	33.5	43.5	-10.0	48.8	31.2	2.0	10.9	3.0
223.33	34.3	46.0	-11.7	48.8	31.2	2.1	11.6	3.0
343.58	37.5	46.0	-8.5	48.1	31.2	2.7	14.9	3.0
360.76	35.8	46.0	-10.2	45.9	31.2	2.8	15.2	3.0
377.94	41.1	46.0	-4.9	50.6	31.2	2.9	15.8	3.0
412.29	36.8	46.0	-9.2	45.8	31.2	3.1	16.1	3.0
687.16	38.8	46.0	-7.2	42.5	31.2	4.1	20.4	3.0

Test Mode: Normal, Bluetooth Rx on Ch1

Temperature: 20 C

Humidity: 50 %

All other emissions not reported are at least 20 dB below the Class B limit.

## 5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	9/11/07
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	9/11/07
EMI Receiver	Rhode-Schwarz	FSP-40	100030	12	9/12/07
BI-Log Antenna	Antenna Research	LPB-2513/A	1154	12	8/29/07
Horn Antenna	EMCO	3115	9170-3712	12	5/10/07
Horn Antenna	EMCO	3160-09	Not Labeled	#	#
Pre-Amplifier	Sonoma Inst.	310	185634	12	8/11/07
Pre-Amplifier	Miteq	AMF-4D-001180-24-10P	799159	12	6/20/07

# No Calibration required

## **6.0 Document History**

<b>Revision/ Job Number</b>	<b>Writer Initials</b>	<b>Date</b>	<b>Change</b>
1.0 / 3119206	DC	April 6, 2007	Original document