RC-032-C42-07-102905-1-AM-PG

"This report cancels and replaces the test report N° RC-032-C42-07-102905- 1 Edition 1"

E.M.C Test Report

According to the standard:
FCC PART 15 Edition 2007

Equipment under test:
GPS X-970T

FCC ID :
VLYPN3X002

Company:
ViaMichelin

DISTRIBUTION: Mr ABBASSI (Company: ViaMichelin)

Number of pages: 47 with 5 annexes

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TEST CERTIFICATION FOR:	Fcc Certification
NAME OF THE EQUIPMENT UNDER TEST:	GPS X-970T
Reference:	ViaMichelin Navigation X-970T
Serial number:	721217Z882
NAME OF THE MANUFACTURER:	ViaMichelin
ADDRESS OF THE APPLICANT:	
Company:	ViaMichelin
Address:	110, avenue Victor Hugo 92154 BOULOGNE BILLANCOURT CEDEX FRANCE
Person in charge:	Mr ABBASSI
DATES OF TESTS:	2007, the 23rd and the 24th of August
TESTS LOCATION:	Open area test site in Aunainville (28) - FRANCE Registration Number by FCC: 910701
TESTS OPERATOR:	F. LHEUREUX

TABLE OF CONTENTS

1. INTRODUCTION

This document presents the results of Electromagnetic Compatibility tests performed on the equipment «*GPS X-970T*» according to reference document listed below.

2. REFERENCE DOCUMENT

FCC Part 15 Edition 2007

Code of Federal Regulations
Title 47- Telecommunication
Chapter 1- Federal Communication Commission
Part 15- Radio frequency devices

3. PRODUCT DESCRIPTION

ITU Emission code:	500KF7E
Class:	B (residential environment)
Utilization:	GPS Navigation Mobile Device with a Bluetooth connexion
Operating frequency range:	From 2402 MHz to 2480 MHz
Number of channels:	
Channel spacing:	1 MHz
Frequency generation:	Crystal
Modulation: Frequency Hopping Spread Spectrum (FHSS)	Frequency
Power source:	5 Vdc

Power level, frequency range and channels characteristics are not user adjustable.

4. *EQUIPMENT UNDER TEST (EUT) CONFIGURATION*

- See antenna factors, insertion losses and amplifier values in annex 1.
- See internal photographs in annex 2.
- See setup photographs in annex 3.

Modification of the equipment during the tests: No.

5. *TESTS AND CONCLUSION*

The following table summarizes test results of the EUT.

Test procedure	Designation of test	Test results				Comments
		Pass	Fail	N.A.	N.P.	
15.207	Measurement of conducted emission on AC mains ports	X				
15.247 (b) (1)	Maximum peak power measurement	X				
15.247 (b) (1)	RF exposure compliance			X		Note 3
15.247 (e)	Power spectral density measurement			X		Note 4
15.247 (a) (2)	6 dB bandwidth measurement	X				
15.247 (d)	Band edge measurement	X				
15.205 and 15.209	Unintentional radiated emissions in the band 30 MHz – 25 GHz	X				
15.247 (a) (1)	Hopping mode measurement	X				Note 1
15.247 (a) (1) (iii)	Hopping timing measurement	X				Note 2

N.A.: Not Applicable
N.P.: Not Performed

Note 1: See annex 5, the frequency hopping system have hopping channel carrier frequencies separated by 1 MHz. The system hop to channel frequencies from a pseudo rand only ordered list happening frequencies. Each frequency is use equally on the average by the transmitter and separated by a minimum of 20 dB bandwidth of the hopping channel.

Note 2: The frequency hopping system use more than 15 non overlapping channels. The timing by channel is 450 µs (see annex 6). During 79 channels 0.4 s (port 15) = 31.6 s any channel is used 537 times then 537 x 437.5 µs = 234.5 ms, than the average time of occupancy on any channel is less than 400 ms within a period of 0.4 s multiplied by the number of hopping channels employed in normal operating mode.

Note 3: This type of equipment use less than 0.5 W

Note 4: Power spectral density test is not applicable for a FHSS equipment.

Conclusion:

The tested sample "GPS X-970 T" submitted to the tests complies with the requirements of the standard:

- FCC PART 15 Edition 2007

according to the limits specified in this report.

6. *MEASUREMENT OF CONDUCTED EMISSION ON AC MAINS PORTS*

Standard: FCC Part 15 : 2007

Sections: 15.107 and 15.207

Test configuration:

The equipment under test (EUT) is operating on a non conductive test table at 0.8 m above the horizontal metal ground plane and at 0.4 m above the vertical metal ground plane.

The EUT is supplied through LISN (Line Impedance Stabilization Network) bonded to the ground reference plane.

Tested cable	Measure with	E.U.T. height (cm)
230 Vac power supply	LISN	80

Frequency band	Tested cable	Resolution bandwith	Video bandwith	Detection mode
150kHz-30MHz	230 Vac power supply	10kHz	30kHz	Peak

Test method deviation: NONE

Test configuration photographs:

Detection mode: Peak, Quasi-peak, Average.

Limit: The EUT must satisfy requirements of the standard for class A OU B as shown in table below.

Frequency range (MHz)	Limit for class B (dBµV)		Limit for class A (dBµV)	
	Quasi-peak	Average	Quasi-peak	Average
0,15 to 0,5	66 - 56	56 - 46	79	66
0,5 to 5	56	46	73	60
5 to 30	60	50		

Operating mode during the test:

The equipment under test is connected with a phone in Bluetooth mode, and load mode.

Instrumentation test list:

Nr Emitech	Category	Brand	Type
0000	Software Bat-ecm	Nexio	V.1.3.9.6
181	Receiver	Rohde & Schwarz	ESH3
326	LISN	Rohde et Schwarz	ESH2-Z5
813	LISN	PMM	L3 - 25
1694	Software	Emitech	UTEMC3H7
1804	Test enclosure	Emitech	JD
2151	AC power source	Schaffner	NSG 1007-5-400
2808	Cable	Cables&Connectiques	N-4m
2810	Cable	Cables&Connectiques	N-2m
3258	Limiter	HP	11947A
3809	AC power source	Elgar	751A

Results:

Curve reference	Comments
Curve 1	Measurement of peak detection on wire 1
Curve 2	Measurement of peak detection on wire 2
Curve 3	Measurement of quasi-peak detection on wire 1
Curve 4	Measurement of average detection on wire 1
Curve 5	Measurement of average detection on wire 2

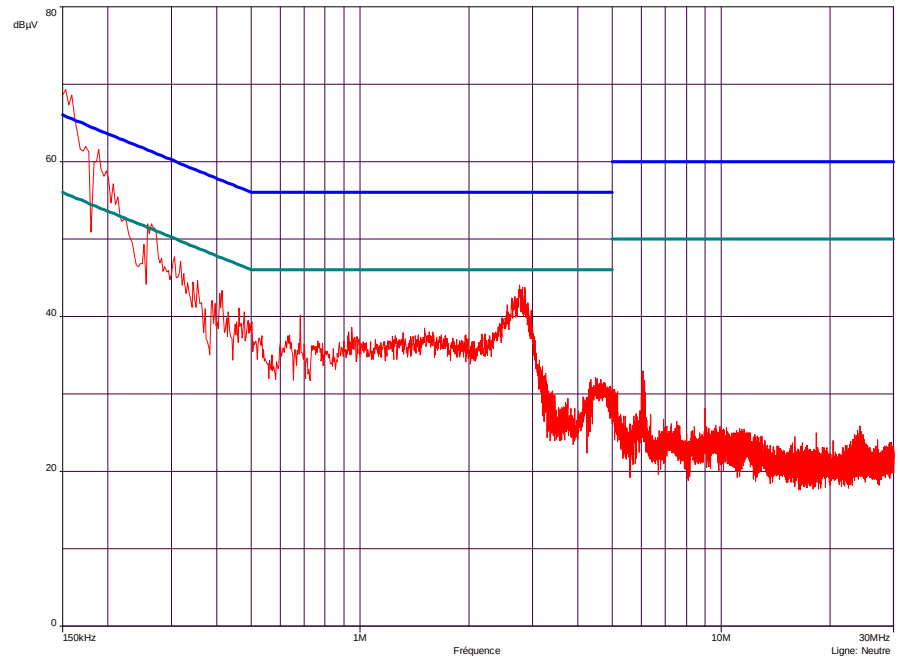
Observation during the test:

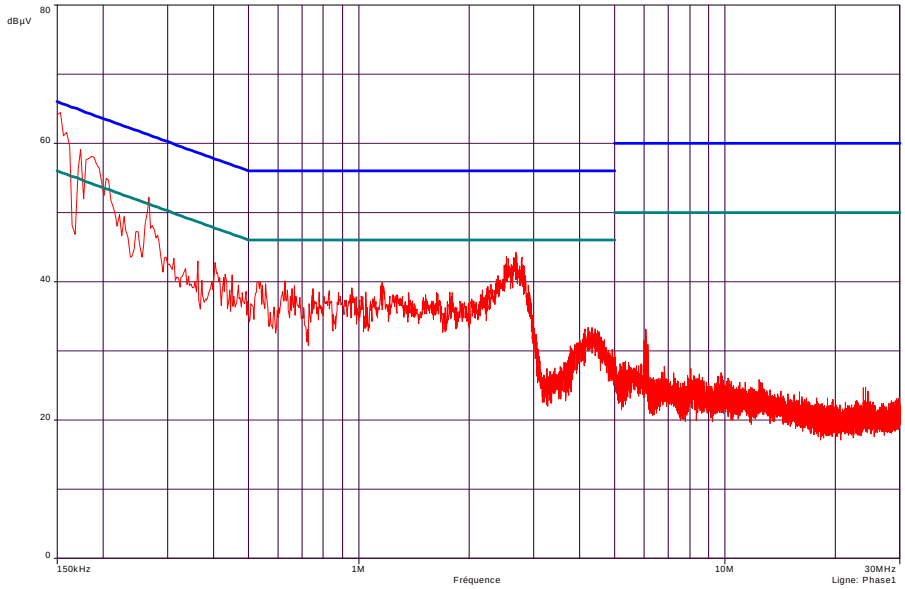
The equipment complies with the requirement of the FCC PART 15.207 Edition 2007

GSP X-970T

MEASUREMENT OF CONDUCTED EMISSION ON AC MAINS PORTS
POWER SUPPLY 230 Vac, Peak detection
BLUETOOTH MODE, AND LOAD MODE

Curves 1 and 2
09/07/2007



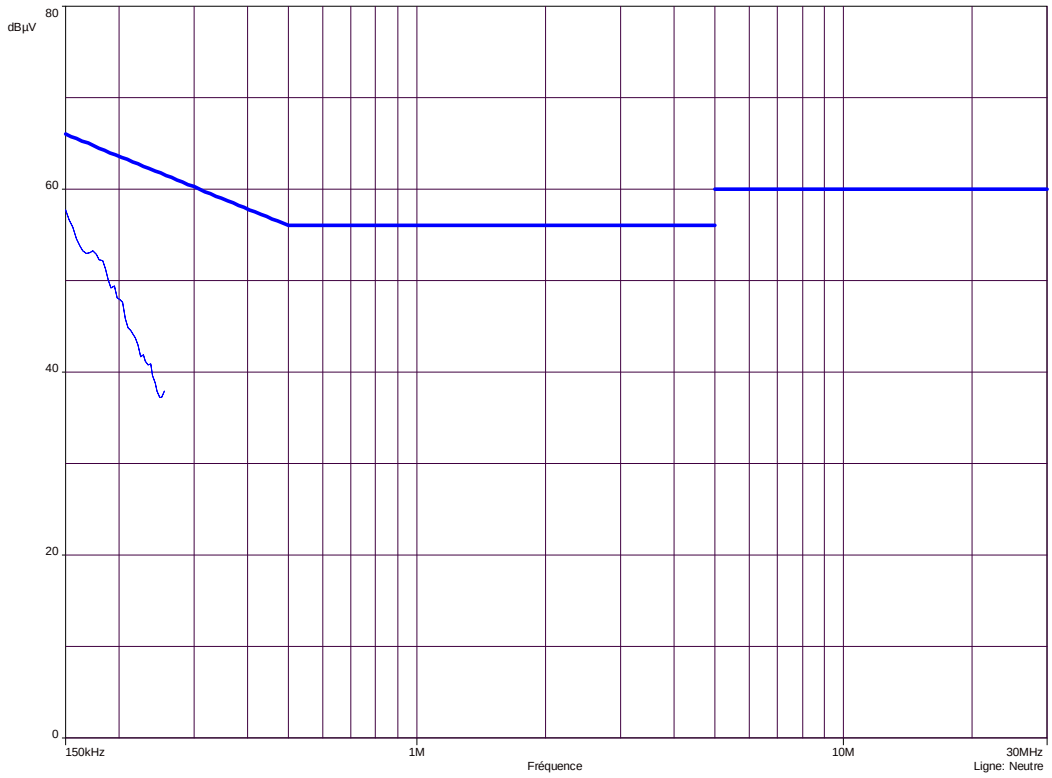


Class: B of the standard

GSP X-970T

MEASUREMENT OF CONDUCTED EMISSION ON AC MAINS PORTS
POWER SUPPLY 230 Vac, Quasi Peak detection.
BLUETOOTH MODE, AND LOAD MODE

Curve 3
09/07/2007

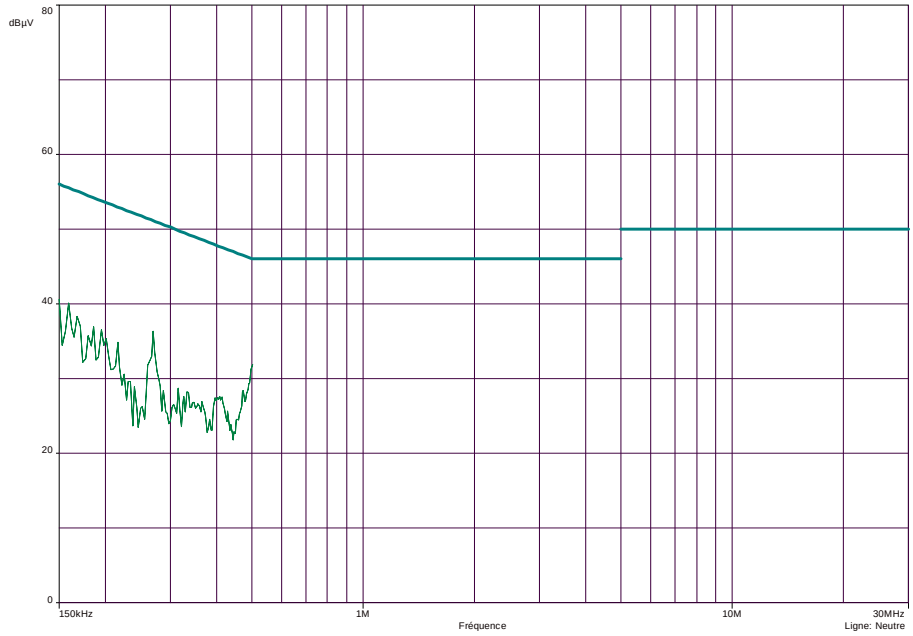


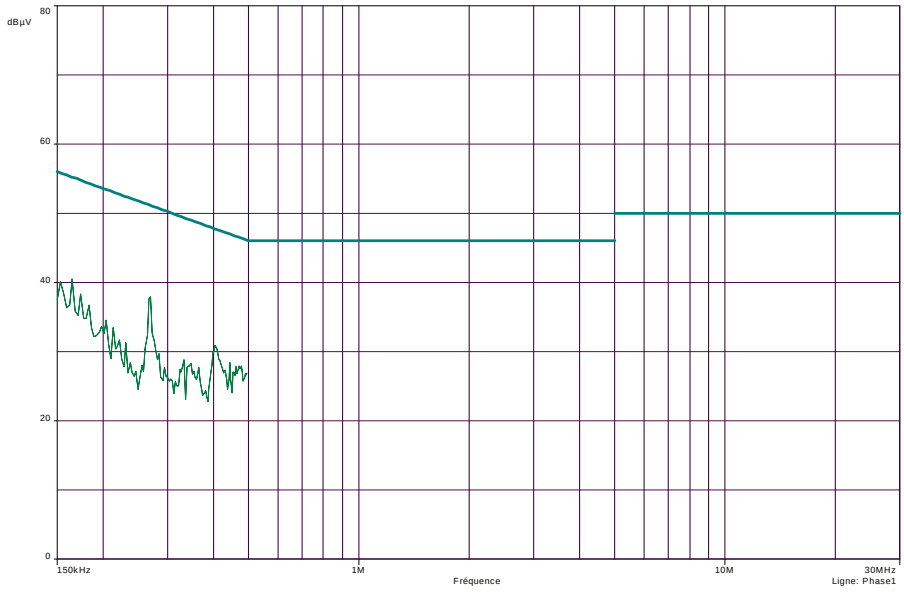
Class: B of the standard

GSP X-970T

MEASUREMENT OF CONDUCTED EMISSION ON AC MAINS PORTS
POWER SUPPLY 230 Vac, Average detection.
BLUETOOTH MODE, AND LOAD MODE

Curves 4 and 5
09/07/2007





Class: B of the standard

7. *MAXIMUM PEAK POWER MEASUREMENT*

Standard: FCC PART 15 Edition 2007

Section: 15.247 (b) (1)

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. The maximum level measured on the spectrum analyser was recorded.

Distance of antenna: 3 meters

Instrumentation test list:

Nr Emitech	Category	Brand	Type
187	OATS	Emitech	-
213	Power supply	Sodilec	SDR 60/10
896	Multimeter	Fluke	77-2
1097	High pass filter	Trilithic	6HC1300-2.5-KK
2205	Spectrum analyzer	Agilent	E7405A
2341	Antenna mast	HD GmbH	MA 240
2342	Mast controller	HD GmbH	HD 100
3374	Antenna	Emco	3115

Equipment under test operating condition:

EUT is not in continuous transmission mode. The Bluetooth mode is connected with a phone. There is no possibility to choose a particular frequency channel.

The GPS and TMC mode are tested.

Measure conditions:

Ambient temperature (°C): 25
Relative humidity (%): 55

Power source: 12 Vd.c.

For RF peak level: Resolution bandwidth: 1 MHz
Video bandwidth: 1 MHz

Results:

Polarization of test antenna: horizontal (height: 120 cm, Az: 10°).
Position of equipment: Screen front side

Sample n°1 Channel 1 (2402 MHz) Curve 6

		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	66.98	3.8	28.8	99.58	2.723×10^{-3}

Sample n°2 Channel 40 (2441 MHz) Curve 7

		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	66.84	3.8	28.8	99.44	2.075×10^{-3}

Sample n°3 Channel 79 (2480 MHz) Curve 8

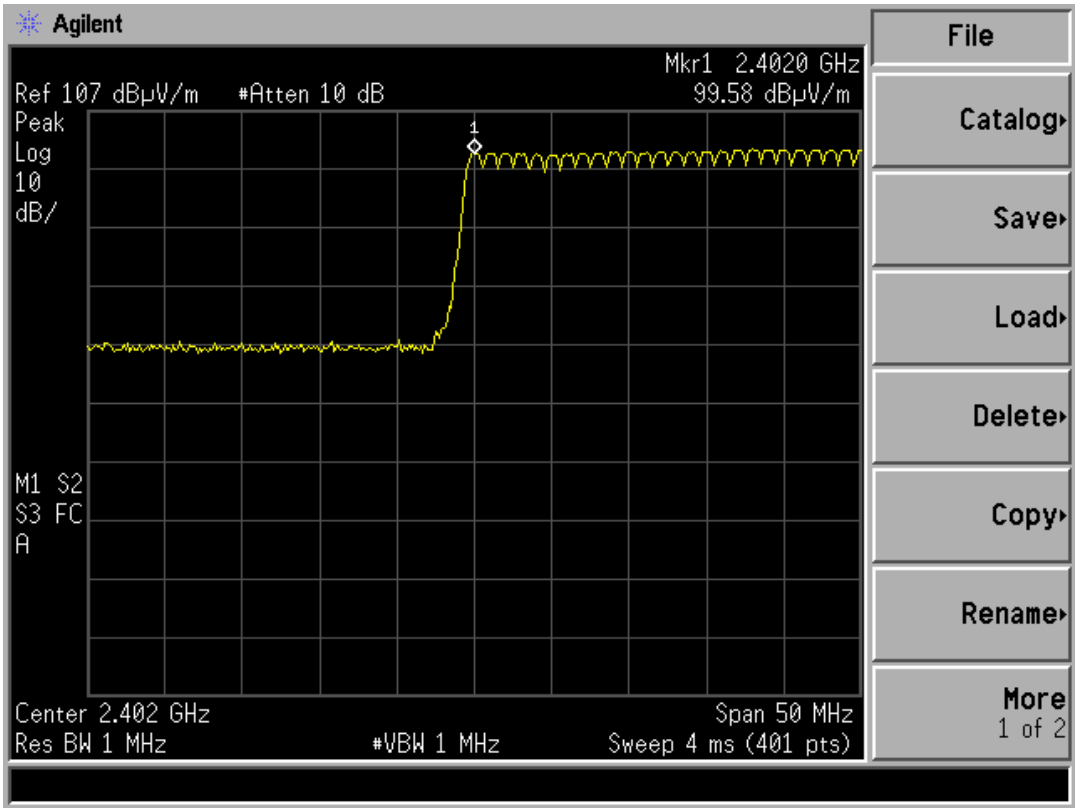
		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	66.82	3.8	28.8	99.42	2.625×10^{-3}

* $P = (E \times d)^2 / (30 \times Gp)$ with d = 3m and Gp = 1

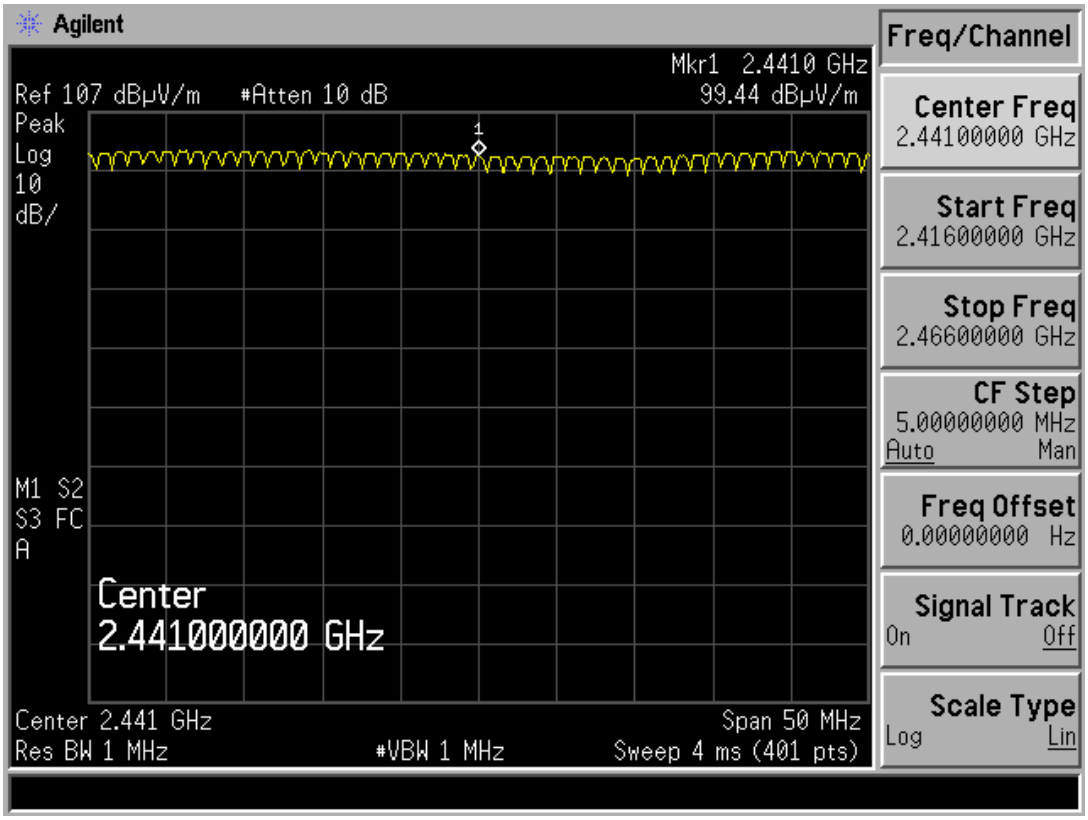
Measurement uncertainties: 4.2 dB

Test conclusion: Complies with the requirements of the standard.

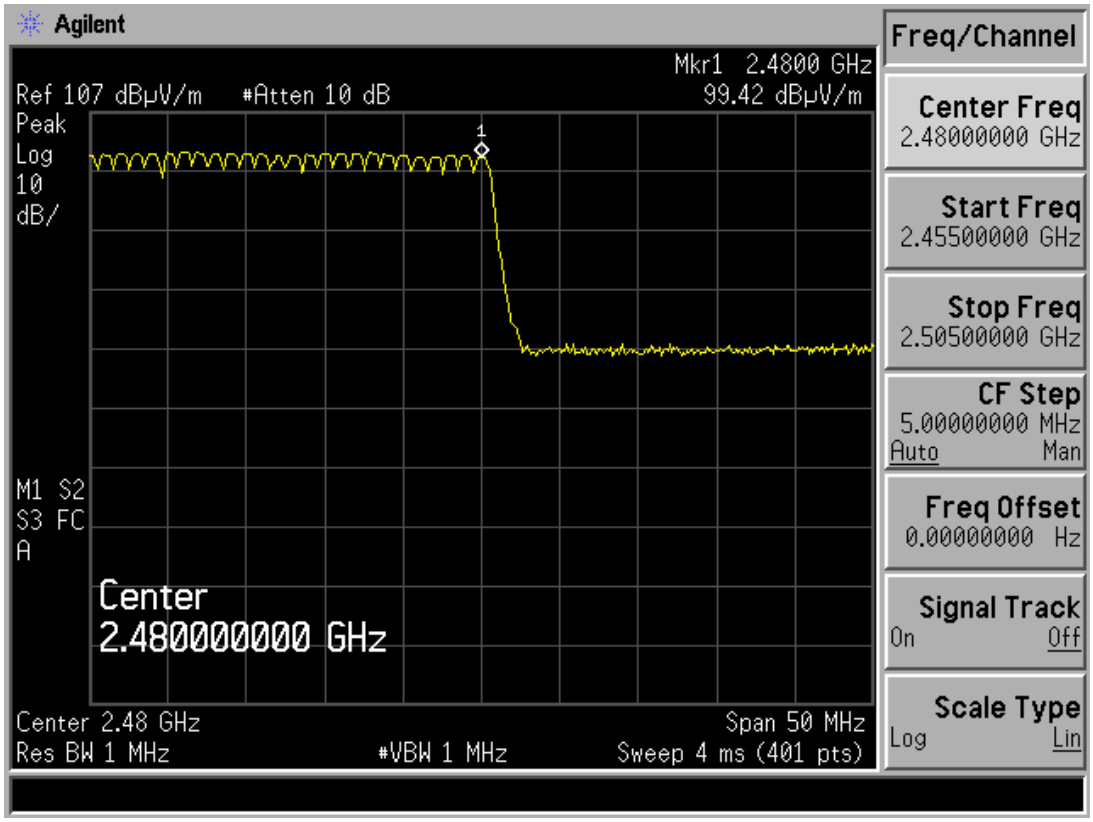
Curve 6



Curve 7



Curve 8


Agilent
Mkr1 2.4800 GHz
Ref 107 dBµV/m
#Atten 10 dB
99.42 dBµV/m
Peak
Log
10
dB/
1
M1 S2
S3 FC
A
Center
2.480000000 GHz
Center 2.48 GHz
Res BW 1 MHz
#VBW 1 MHz
Span 50 MHz
Sweep 4 ms (401 pts)
Freq/Channel
Center Freq
2.48000000 GHz
Start Freq
2.45500000 GHz
Stop Freq
2.50500000 GHz
CF Step
5.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Scale Type
Log
Lin

8. POWER SPECTRAL DENSITY MEASUREMENT

Standard: FCC PART 15 Edition 2007

Section: 15.247 (e)

Test conclusion: No applicable for equipment having a FHSS modulation.

9. 6 dB BANDWIDTH MEASUREMENT

Standard: FCC PART 15 Edition 2007

Section: 15.247 (a) (2)

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization.

The 6dB bandwidth was recorded on spectrum analyser.

Distance of antenna: 3 meters

Instrumentation test list:

Meter	Nr Emitech	Category	Mark	Type
187	16/004	OATS	Emitech	-
1097	18/082	High pass filter	Trilithic	6HC1300-2.5-KK
2205	02/068	Spectrum analyser	Agilent	E7405A
2341	19/018	Antenna mast	HD GmbH	MA 240
2342	19/019	Mast controller	HD GmbH	HD 100
2864	35/241	Cable	Câbles & Connectiques	N-SMA
2896	35/273	Cable		N-13m
3229	01/127	Preamplifier	Miteq	AMF-6D-010250-70-7P
3374	24/604	Antenna	Emco	3115

Equipment under test operating condition:

EUT is not in continuous transmission mode. The Bluetooth mode is connected with a phone. There is no possibility to choose a particular frequency channel.

The GPS and TMC mode are tested.

Measure condition:

Resolution bandwidth: 100 kHz
Video bandwidth: 100 kHz

Ambient temperature (°C): 25
Relative humidity (%): 55

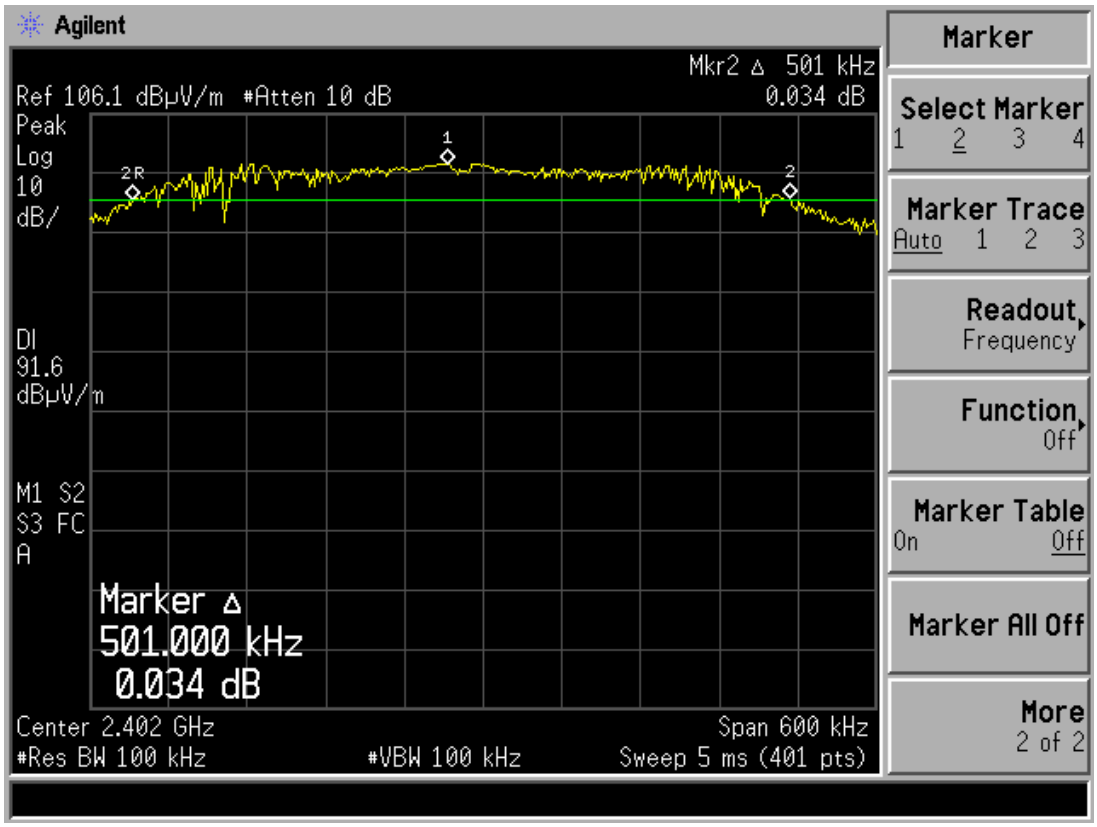
Results:

Polarization of test antenna: horizontal (height: 120 cm, Az: 10°).
Position of equipment: Screen front side

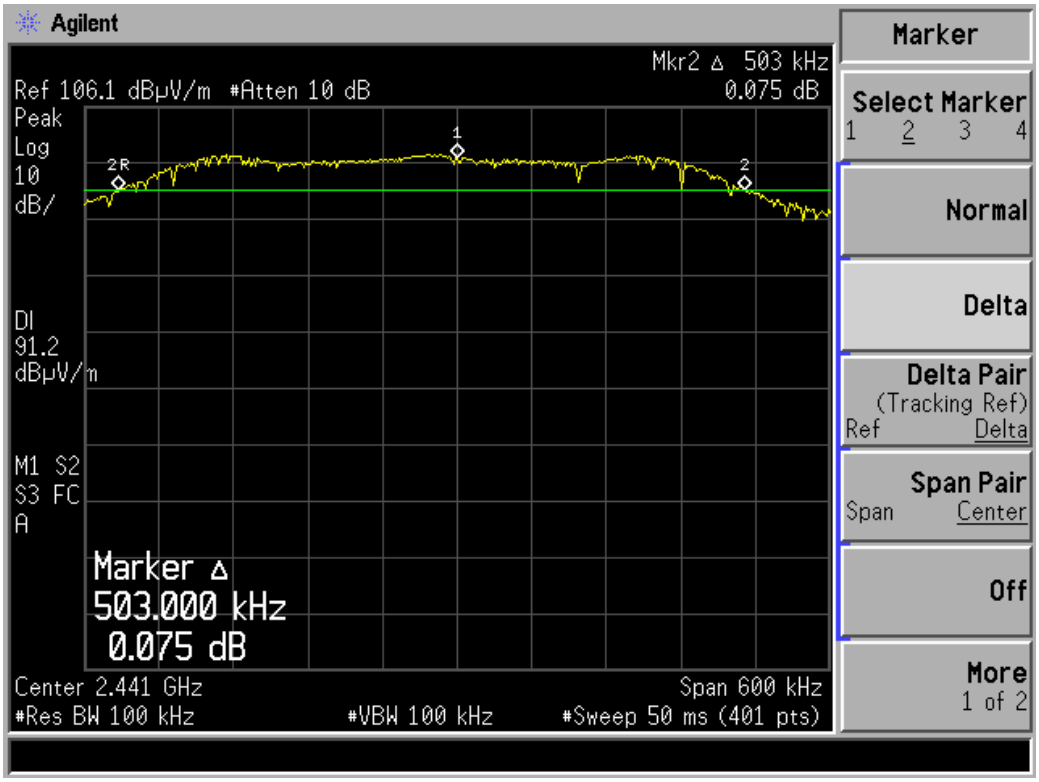
Channel frequency (MHz)	Limit (kHz)	6 dB bandwidth (MHz)	Curve reference
2402	> 500	501	Curve 9
2441	> 500	503	Curve 10
2480	> 500	504	Curve 11

Test conclusion: Complies with the requirements of the standard.

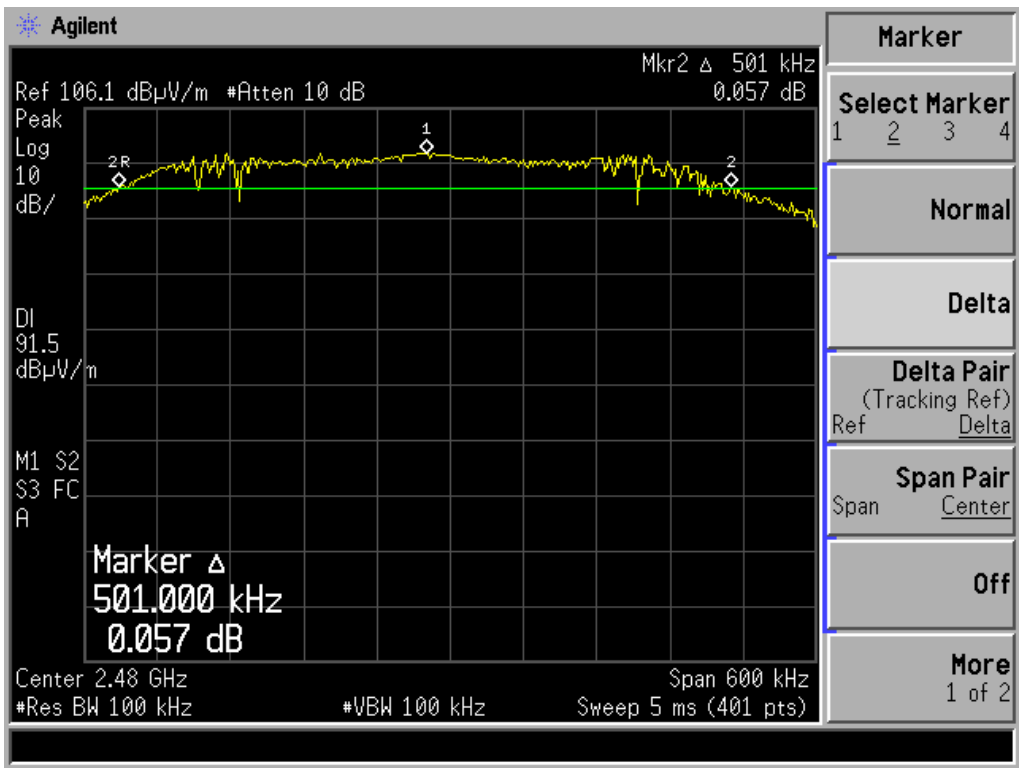
Curve 9



Curve 10



Curve 11



10. BAND EDGE MEASUREMENT

Standard: FCC PART 15 Edition 2007

Section: 15.247 (d)

Test procedure: Public Notice DA 00-705, Delta Marker method.

Test configuration:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

The level was maximised in antenna height, azimuth and polarization. Then the level at 20 dB under the maximum level on the analyser was recorded.

Distance of antenna: 3 meters

Instrumentation test list:

Nr Emitech	Category	Brand	Type
187	Open site	Emitech	Aunainville
213	Power supply	Sodilec	SDR 60/10
1097	High pass filter	Trilithic	6HC1300-2.5-KK
2205	Spectrum analyzer	Agilent	E7405A
2341	Antenna mast	HD GmbH	MA 240
2342	Mast controller	HD GmbH	HD 100
2896	Cable	Cables&Connectiques	N-13m
3374	Antenna	Emco	3115

Equipment under test operating condition:

EUT is not in continuous transmission mode. The Bluetooth mode is connected with a phone. There is no possibility to choose a particular frequency channel.

The GPS and TMC mode are tested.

Measure condition:

Resolution bandwidth: 100 kHz
Video bandwidth: 100 kHz

Ambient temperature (°C): 25
Relative humidity (%): 55

Results:

Polarization of test antenna: horizontal (height: 120 cm, Az: 10°).
Position of equipment: Screen front side

Lowest frequency limit: from 2310 MHz to 2390 MHz, curve n° 12
Upper Band Edge: from 2483.5 MHz to 2500 MHz, curve n° 13

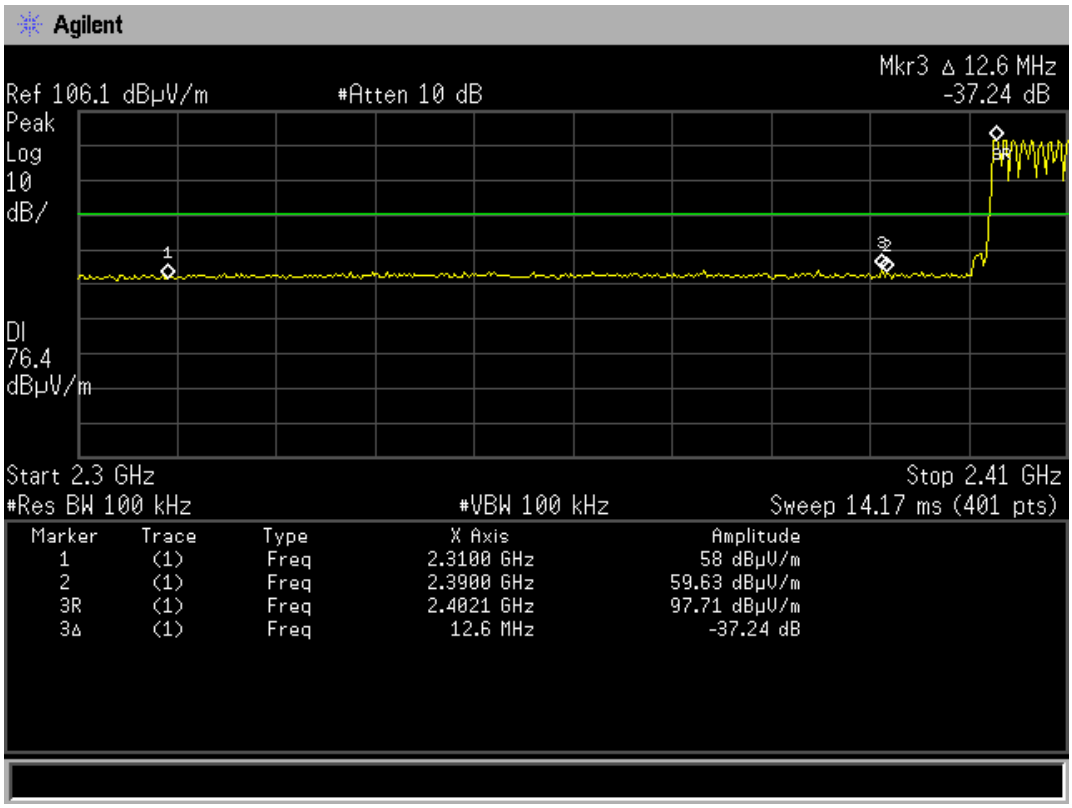
Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB)*	Calculated Max Out of Band Emission Level (dBµV/m)**	Limit (dBµV/m)	Margin (dB)
2402	97.71	Peak	2389.5	-37.24	60.47	77.71	17.24
2480	97.8	Peak	2483.5	-38.82	58.98	77.8	-18.82

* according to step 2 of Marker-Delta Method DA 00-705.
** according to step 3 of Marker-Delta Method:
Calculated Emission Level = Field Strength Level - Delta Marker Level

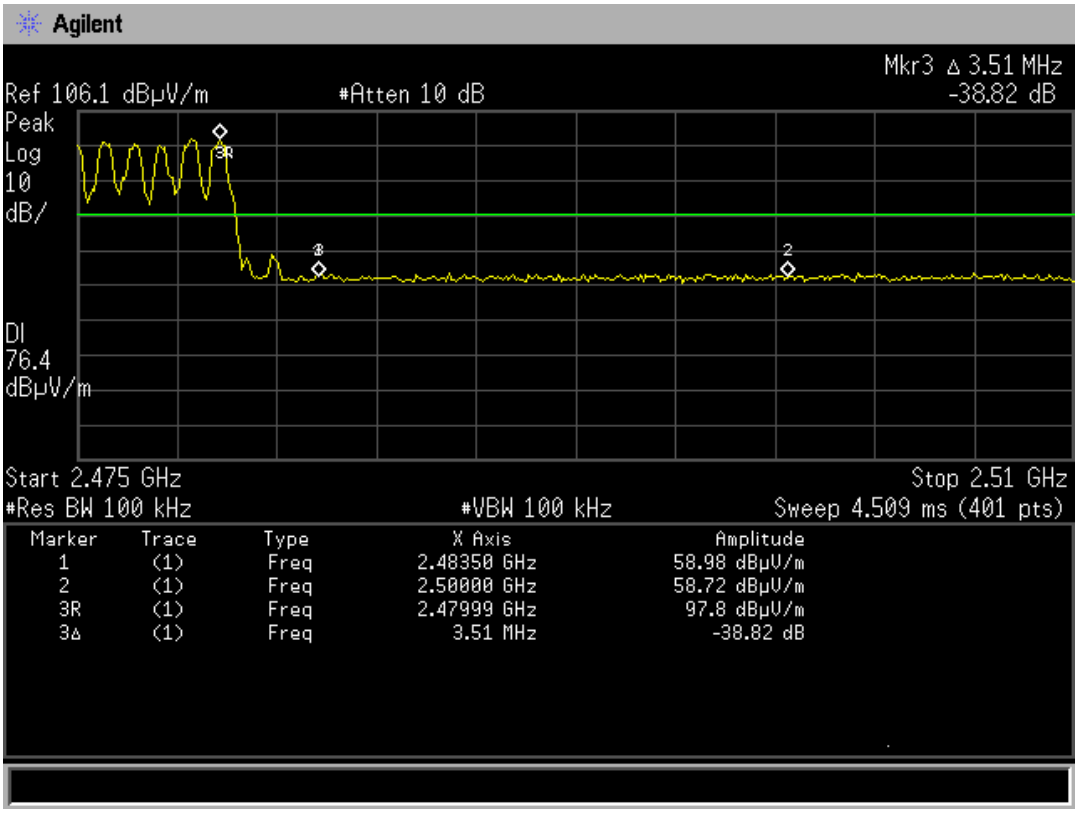
Test conclusion:

Complies with the requirements of the standard.

Curve 12



Curve 13


Agilent
Mkr3 Δ 3.51 MHz
-38.82 dB
Ref 106.1 dBµV/m
#Atten 10 dB
Peak
Log
10
dB/
Dl
76.4
dBµV/m
Start 2.475 GHz
Stop 2.51 GHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 4.509 ms (401 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.48350 GHz 58.98 dBµV/m
2 (1) Freq 2.50000 GHz 58.72 dBµV/m
3R (1) Freq 2.47999 GHz 97.8 dBµV/m
3Δ (1) Freq 3.51 MHz -38.82 dB

11. UNINTENTIONAL RADIATED EMISSIONS IN THE BAND 30 MHZ - 25 GHZ

Standard: FCC PART 15 Edition 2007

Sections: 15.205 and 15.209

Equipment under test arrangement:

The equipment under test (EUT) is placed on a non-conductive test table at 0.8 m above the horizontal metal ground plane.

For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. The frequency azimuth and antenna height are presented in the table on the next pages.

The equipment is not in continuous transmission. The bluetooth mode is connected with a phone.
No possibility to choice particular frequency channel.

The GPS and TMC mode are tested.

Frequency range: 30 MHz - 1 GHz
1 GHz - 25 GHz

Detection mode: Quasi-peak for 30 MHz - 1 GHz
Average for 1 GHz - 25 GHz

Resolution bandwidth: 120 kHz for 30 MHz - 1 GHz
1 MHz for 1 GHz - 25 GHz

Measurement distance: 3 meters

Limit: For restrictives bands (see paragraph 15.205), the EUT must satisfy requirements of the section 15.209 as shown in table below (for 3 m).

Frequency range (MHz)	Limit (dBµV/m)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 to 25000	54.0

Limit for peak detection: 86.2 dBµV/m

Instrumentation test list:

Nr Emitech	Category	Brand	Type
187	OATS	Emitech	-
213	Power supply	Sodilec	SDR 60/10
1045	Horn antenna	Oritel	CM 42/25
1097	High pass filter	Trilithic	6HC1300-2.5-KK
1144	Biconical antenna	Schwarzbeck	VHBA 9123
1216	Receiver	Rohde & Schwarz	ESVS10
1529	High pass filter	Trilitic	5EHLX500-3-KK
2205	Spectrum analyzer	Agilent	E7405A
2341	Antenna mast	HD GmbH	MA 240
2342	Mast controller	HD GmbH	HD 100
2450	Cable	Cables & Connectiques	HF 12m
2451	Cable	Cables&Connectiques	HF 2m
2452	Cable	Cables & Connectiques	HF 13m
2864	Cable	Câbles & Connectiques	N-SMA
2896	Cable	-	N-13m
3106	Antenna	Schwarzbeck	UHALP 9108
3229	Preamplifier	Miteq	AMF-6D-010250-70-7P
3374	Antenna	Emco	3115

Results:

VERTICAL POLARIZATION

Frequency (MHz)	Azimut (degrees)	Antenna height (cm)	Measure (dBµV/m)	Standa limit (dBµV/)
30.00	15	120	33.0	40.0

No frequency are observed between 30 MHz to 25 GHz for both polarizations.

Test conclusion:

The equipment complies with the requirements of the standard FCC PART 15.205 and 15.209 Edition 2006.

« □□□ *End of report, 5 annexes to be forwarded* □□□ »

ANNEX 1

Antenna factors, insertion losses and amplifier values

BILL OF MATERIAL

The test antenna used for the radiated emission between 30 MHz and 300 MHz is the biconical antenna n°1144. Antenna factors are given in table 1.

The test antenna used for the radiated emission between 300 MHz and 1 GHz is the log-periodic antenna n°3106. Antenna factors are given in table 2.

The measuring receiver n°1216 used in the frequency range 30 MHz to 1 GHz has an integrated preamplifier.

The test cable used between 30 MHz and 1 GHz to connect the antennas to the receiver for measurements at a distance of 3 meters has losses given in table 3.

The test antennas used for the radiated emission between 1 GHz and 25 GHz are the horn antenna n°3374 and 1045. Antenna factors are given in table 4 and 5.

The amplifier n°3229 and its cable used to connect the spectrum analyzer to the test cable has gain values given in the table 6.

The test cable used between 1 GHz and 25 GHz to connect the horn antenna to the amplifier for measurements at a distance of 3 meters has losses given in table 7.

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
30	12.6	120	11.4
35	11.2	-	-
40	9.6	140	11.2
45	8.7	-	-
50	8.7	160	12.5
60	8.7	-	-
70	8.7	180	13.3
80	8.6	200	14.7
90	9.5	-	-
100	10.5	-	-

TABLE 1 : BICONICAL ANTENNA

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
200	23.0	-	-
300	14.5	700	20.2
400	16.1	800	21.0
500	17.8	900	21.2
600	18.9	1000	22.1

TABLE 2 : LOG-PERIODIC ANTENNA

Frequency (MHz)	loss (dB)	Frequency (MHz)	loss (dB)
30	0.9	150	2.3
35	1.1	160	2.4
40	1.1	180	2.5
45	0.9	200	2.6
50	1.3	250	3.1
60	1.4	300	3.4
70	1.5	400	4.2
80	1.5	500	4.9
90	1.7	600	5.5
100	1.7	700	6.0
120	2.0	800	6.6
125	1.9	900	7.2
140	2.2	1000	7.9

TABLE 3 : TEST CABLE FOR 3M MEASUREMENT INTO 30MHz and 1GHz

Frequency (GHz)	Antenna factor (dB/m)	Frequency (GHz)	Antenna factor (dB/m)	Frequency (GHz)	Antenna factor (dB/m)
1.0	23.4	7.0	35.3	14	41.6
1.5	25.5	7.5	36.5	15	40.9
2.0	26.8	8.0	36.7	16	37.3
2.5	29.0	8.5	37.5	17	39.9
3.0	29.9	9.0	37.8	18	47.4
3.5	31.1	9.5	37.7	18	31.4
4.0	32.6	10.0	37.8	19	31.7
4.5	32.3	10.5	37.9	20	32.8
5.0	33.3	11.0	38.2	21	32.0
5.5	34.1	11.5	38.6	22	32.7
6.0	34.1	12.0	39.1	23	32.4
6.5	33.9	13	39.6	24	32.6

TABLE 4 : HORN ANTENNA 3374 (1 to 18 GHz) and 1045 (18 to 25 GHz)

Frequency (GHz)	Gain value (dB)	Frequency (GHz)	Gain value (dB)	Frequency (GHz)	Gain value (dB)
1.0	24.3	7.0	19.6	14	16.8
1.5	23.6	-	-	15	13.3
2.0	22.3	8.0	18.3	16	9.8
2.5	20.9	-	-	17	11.0
3.0	19.1	9.0	16.2	18	11.1
-	-	-	-	20	5.4
4.0	17.1	10.0	15.0	22	1.4
-	-	-	-	-	-
5.0	17.7	11.0	15.1	-	-
-	-	-	-		
6.0	18.2	12.0	15.9		
-	-	13.0	17.5		

TABLE 5 : AMPLIFIER (1 – 26 GHz)

Frequency (GHz)	loss (dB)	Frequency (GHz)	loss (dB)	Frequency (GHz)	Loss (dB)
1.0	2.4	4.5	5.2	18	11.2
1.5	2.9	5	5.6	21	13.3
2.0	3.5	6	6.2	24	14.9
2.5	3.9	8	7.2		
3.0	4.2	10	8.2		
3.5	4.6	12	9.0		
4.0	5.0	15	10.2		

TABLE 6: TEST CABLE FOR 3 M MEASUREMENT

EMITECH ILE DE FRANCE

ANNEX 2

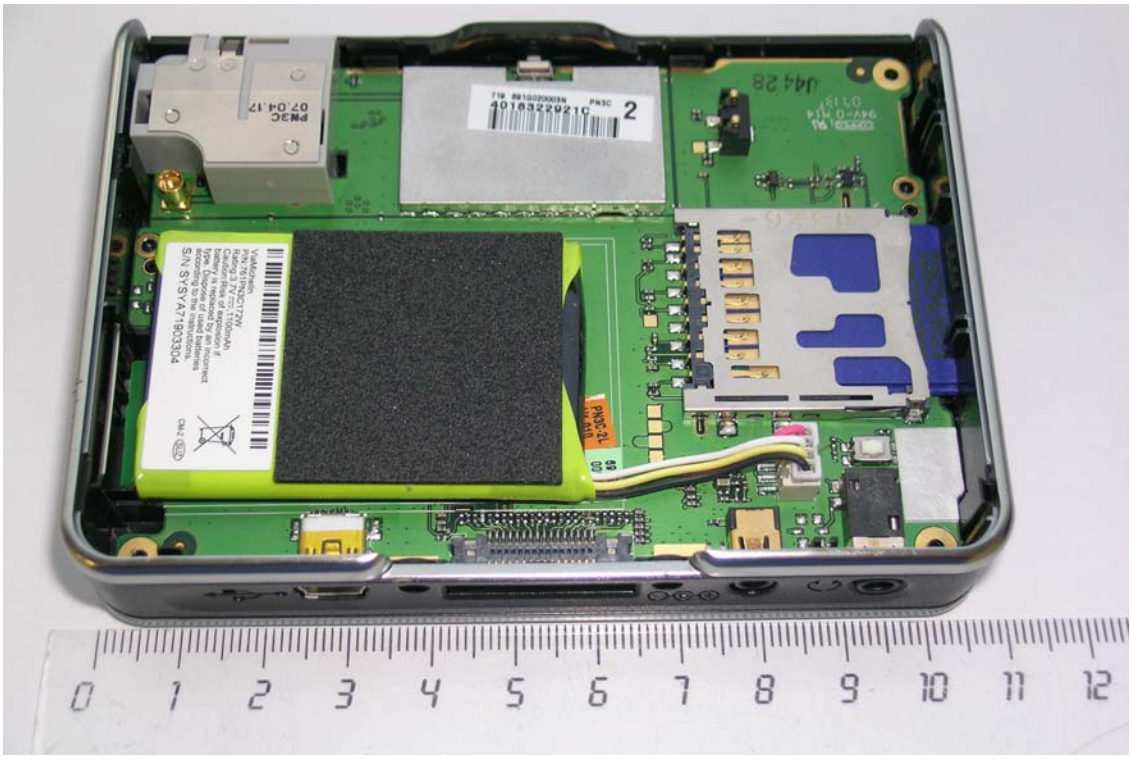
Internal photographs

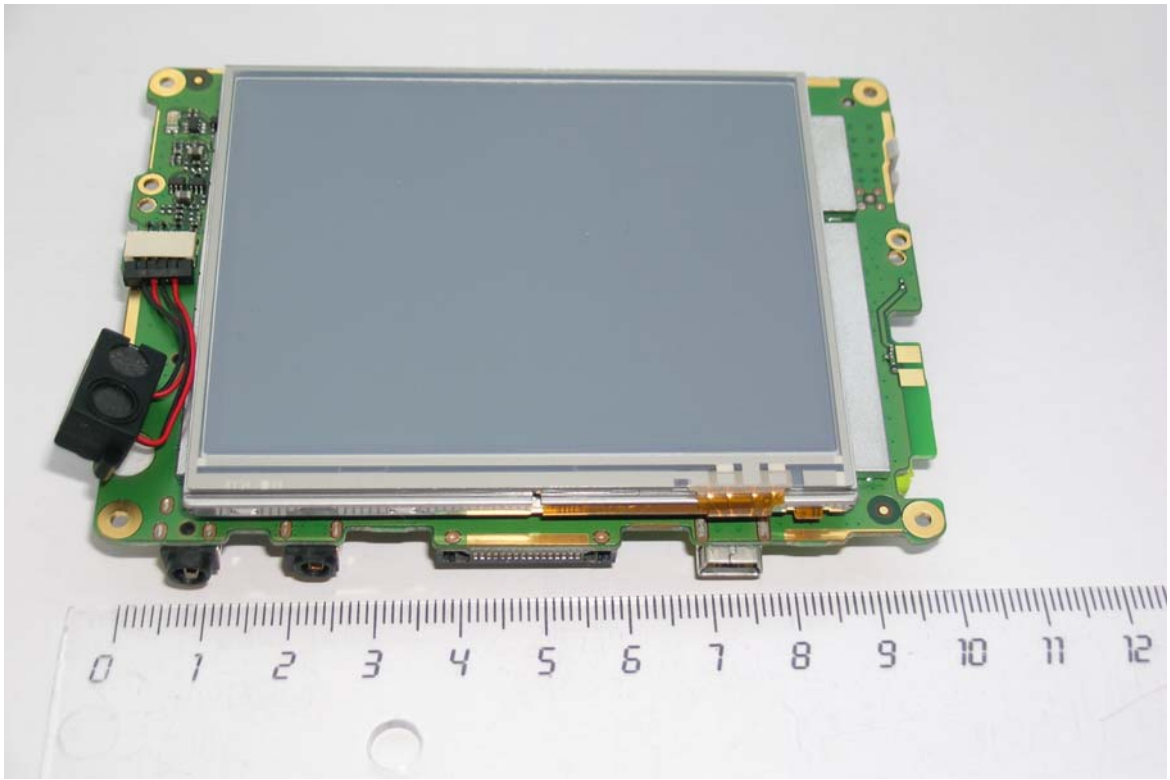

ViaMichelin

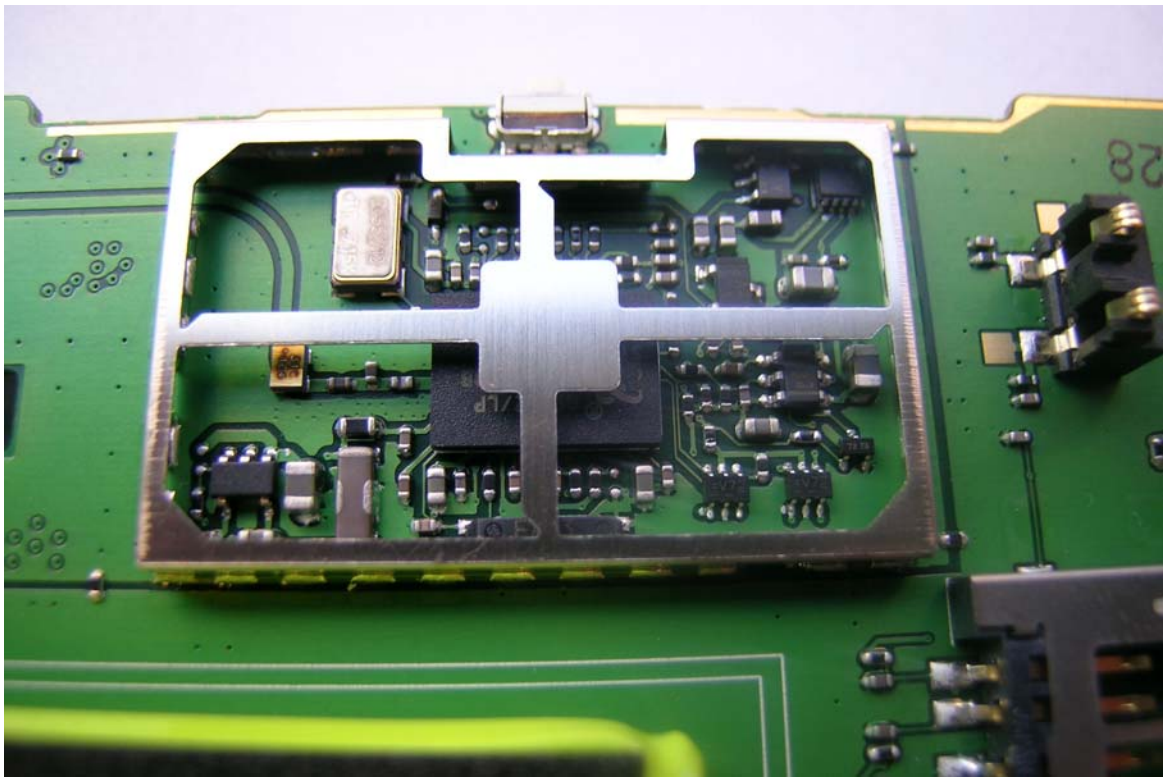

ViaMichelin
Model Name:
ViaMichelin Navigation X-970T
MADE IN CHINA
DC 5V 1A
PNX970T_DV
721217Z882
Windows® CE Core 5.0
00039-229-170-768
X11-15302
RESET

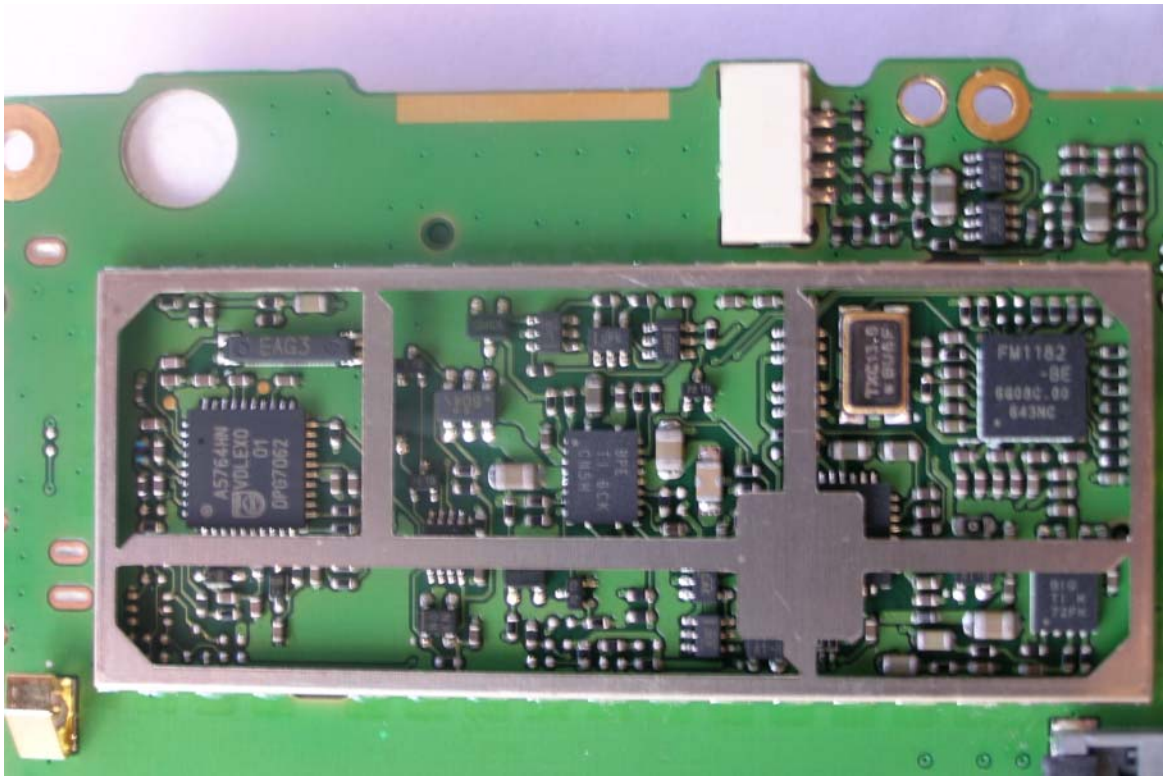

ViaMichelin
PN: PNX970T_ANTF_FC
Model Name:
ViaMichelin
TMC Antenna
Made in China
7218408151185527

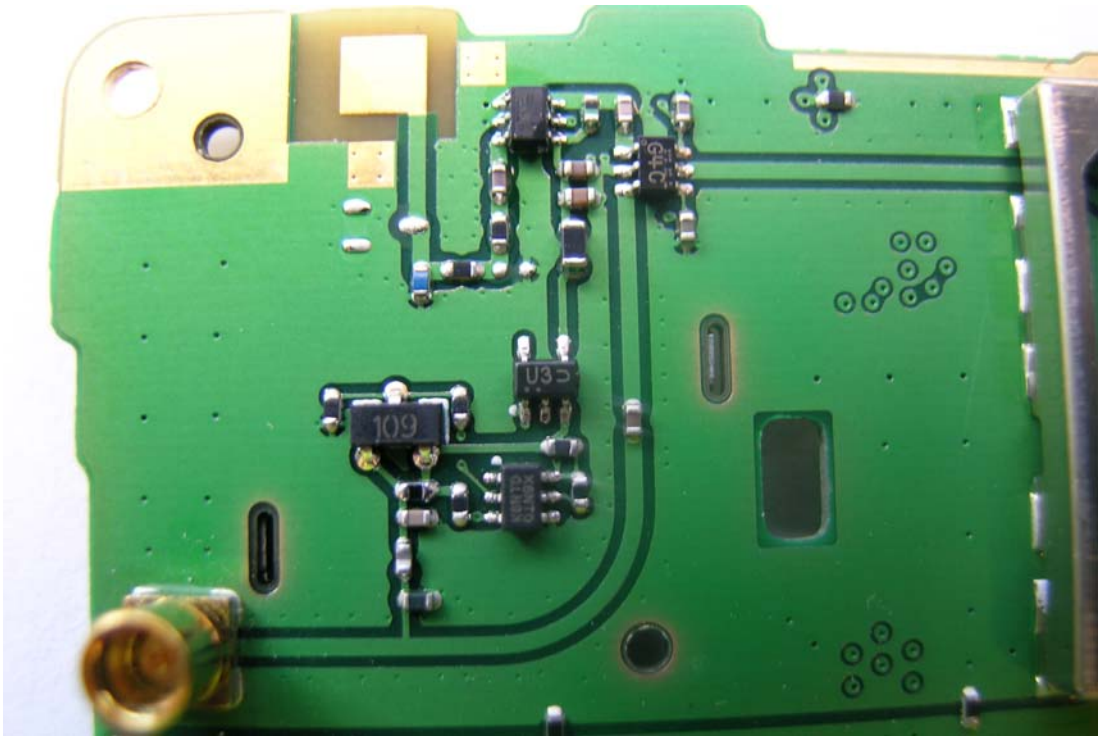

ViaMichelin
XQWZ
SWITCHING POWER SUPPLY
电源适配器 電源供應器
MODEL 型号(型號): PSC05R-050CP
INPUT 输入(輸入): 100-240V~ 0.2A 50-60Hz
OUTPUT 输出(輸出): +5V⎓ 1.0A MAX. LPS
EFFICIENCY LEVEL VI Q02441
E127643
US LISTED
I.T.E. POWER SUPPLY
N136
A049405
052124-11
R33084
DATE 0717
MADE IN CHINA 中国制造 中國製造 (PE)-R

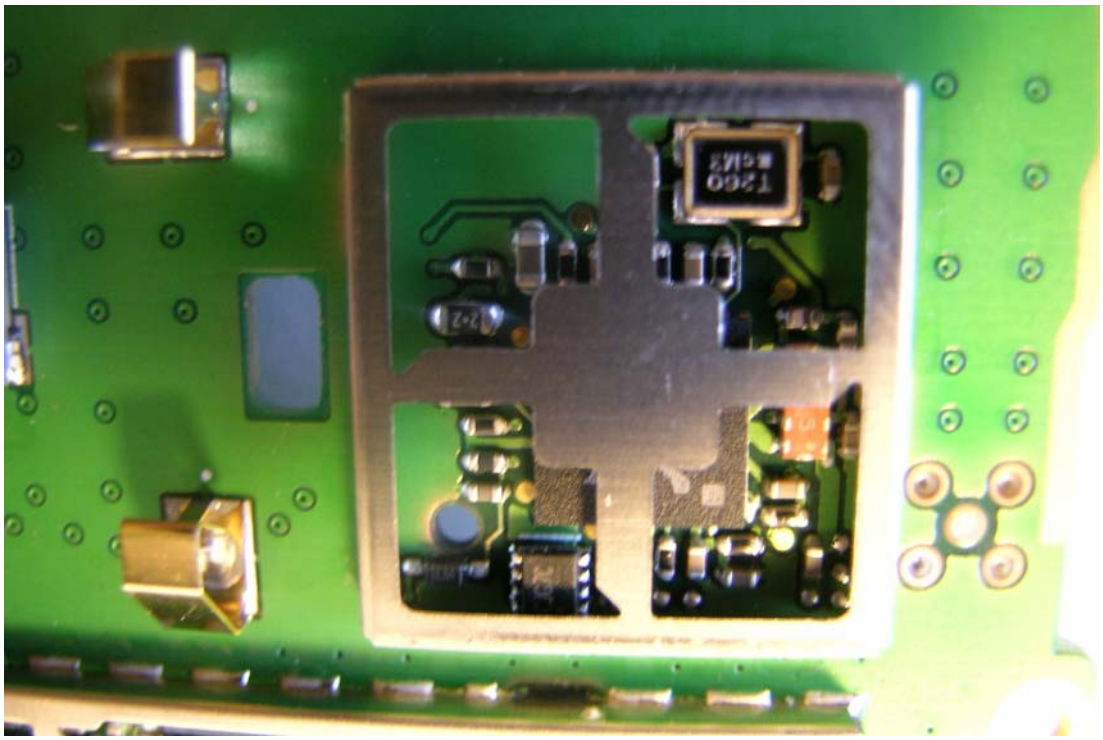







EAG3
A5764HN
VOLEXO
01
DP67062
FM1182
-BE


U35
109



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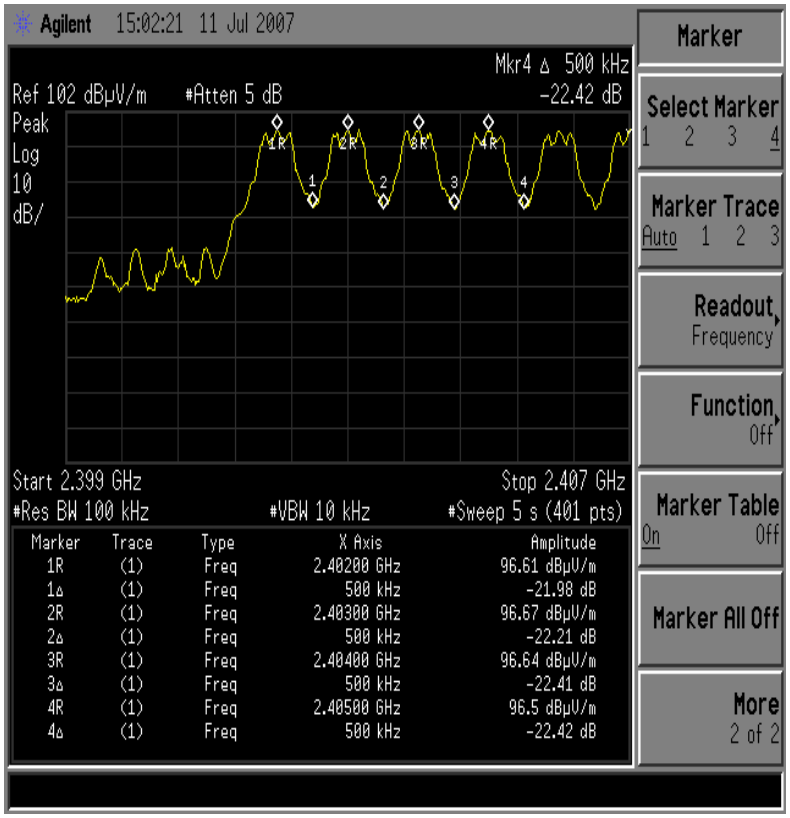
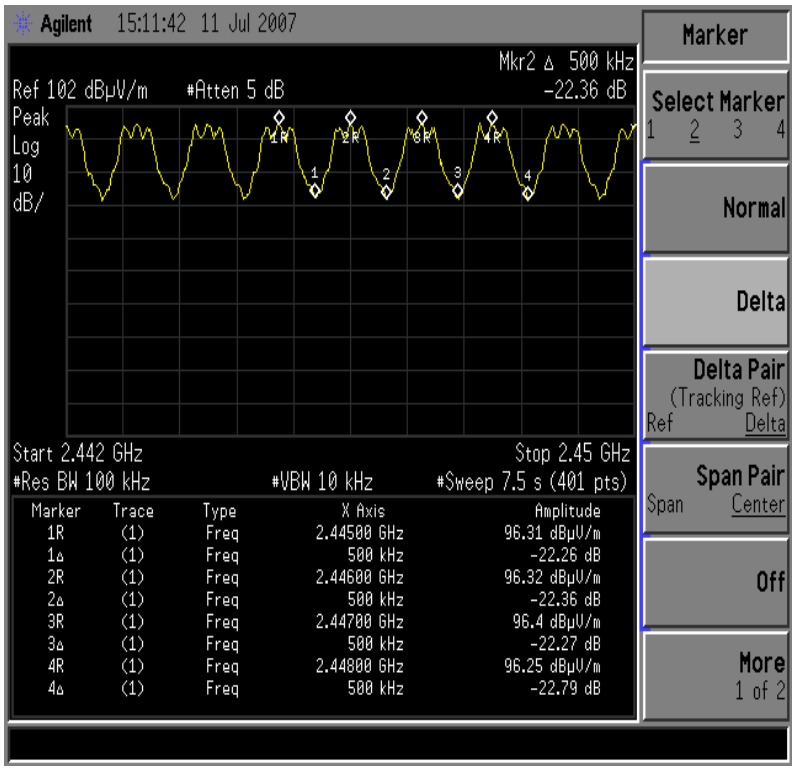
ANNEX 3

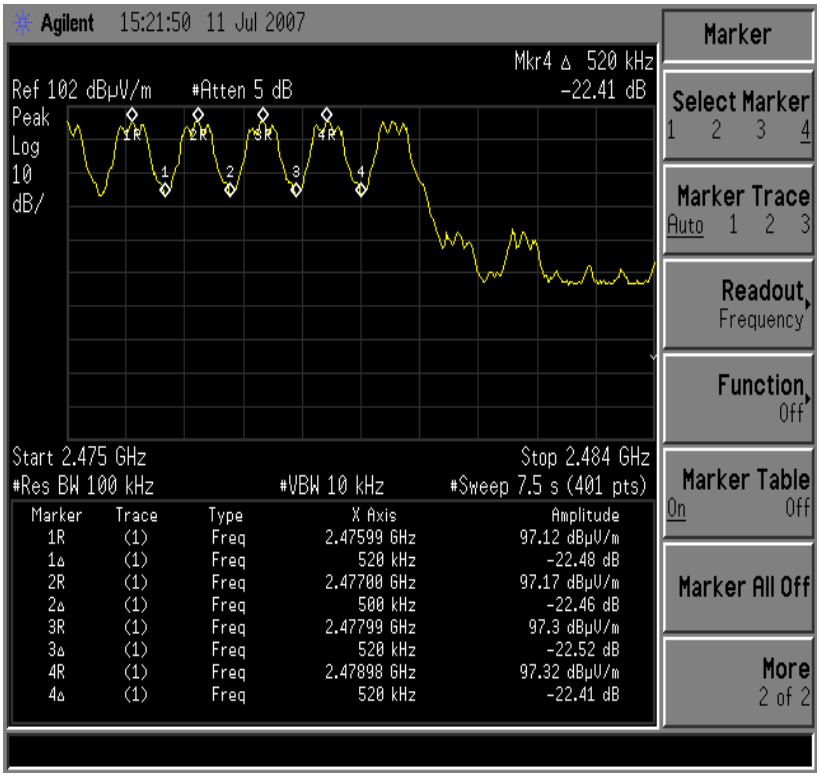
Test setup photographs

ANNEX 4

Channel separation


Agilent 15:02:21 11 Jul 2007
Mkr4 Δ 500 kHz
Ref 102 dBµV/m #Atten 5 dB -22.42 dB
Peak
Log
10
dB/
Start 2.399 GHz
#Res BW 100 kHz
#VBW 10 kHz
Stop 2.407 GHz
#Sweep 5 s (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.40200 GHz 96.61 dBµV/m
1Δ (1) Freq 500 kHz -21.98 dB
2R (1) Freq 2.40300 GHz 96.67 dBµV/m
2Δ (1) Freq 500 kHz -22.21 dB
3R (1) Freq 2.40400 GHz 96.64 dBµV/m
3Δ (1) Freq 500 kHz -22.41 dB
4R (1) Freq 2.40500 GHz 96.5 dBµV/m
4Δ (1) Freq 500 kHz -22.42 dB
Marker
Select Marker 1 2 3 4
Marker Trace Auto 1 2 3
Readout Frequency
Function Off
Marker Table On Off
Marker All Off
More 2 of 2


Agilent 15:11:42 11 Jul 2007
Mkr2 Δ 500 kHz
Ref 102 dBµV/m #Atten 5 dB -22.36 dB
Peak
Log
10
dB/
Start 2.442 GHz
#Res BW 100 kHz
#VBW 10 kHz
Stop 2.45 GHz
#Sweep 7.5 s (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.44500 GHz 96.31 dBµV/m
1Δ (1) Freq 500 kHz -22.26 dB
2R (1) Freq 2.44600 GHz 96.32 dBµV/m
2Δ (1) Freq 500 kHz -22.36 dB
3R (1) Freq 2.44700 GHz 96.4 dBµV/m
3Δ (1) Freq 500 kHz -22.27 dB
4R (1) Freq 2.44800 GHz 96.25 dBµV/m
4Δ (1) Freq 500 kHz -22.79 dB
Marker
Select Marker 1 2 3 4
Normal
Delta
Delta Pair (Tracking Ref) Ref Delta
Span Pair Span Center
Off
More 1 of 2


Agilent 15:21:50 11 Jul 2007
Mkr4 Δ 520 kHz
Ref 102 dBµV/m #Atten 5 dB -22.41 dB
Peak
Log
10
dB/
Start 2.475 GHz
#Res BW 100 kHz
#VBW 10 kHz
Stop 2.484 GHz
#Sweep 7.5 s (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.47599 GHz 97.12 dBµV/m
1Δ (1) Freq 520 kHz -22.48 dB
2R (1) Freq 2.47700 GHz 97.17 dBµV/m
2Δ (1) Freq 500 kHz -22.46 dB
3R (1) Freq 2.47799 GHz 97.3 dBµV/m
3Δ (1) Freq 520 kHz -22.52 dB
4R (1) Freq 2.47898 GHz 97.32 dBµV/m
4Δ (1) Freq 520 kHz -22.41 dB
Marker
Select Marker 1 2 3 4
Marker Trace Auto 1 2 3
Readout Frequency
Function Off
Marker Table On Off
Marker All Off
More 2 of 2

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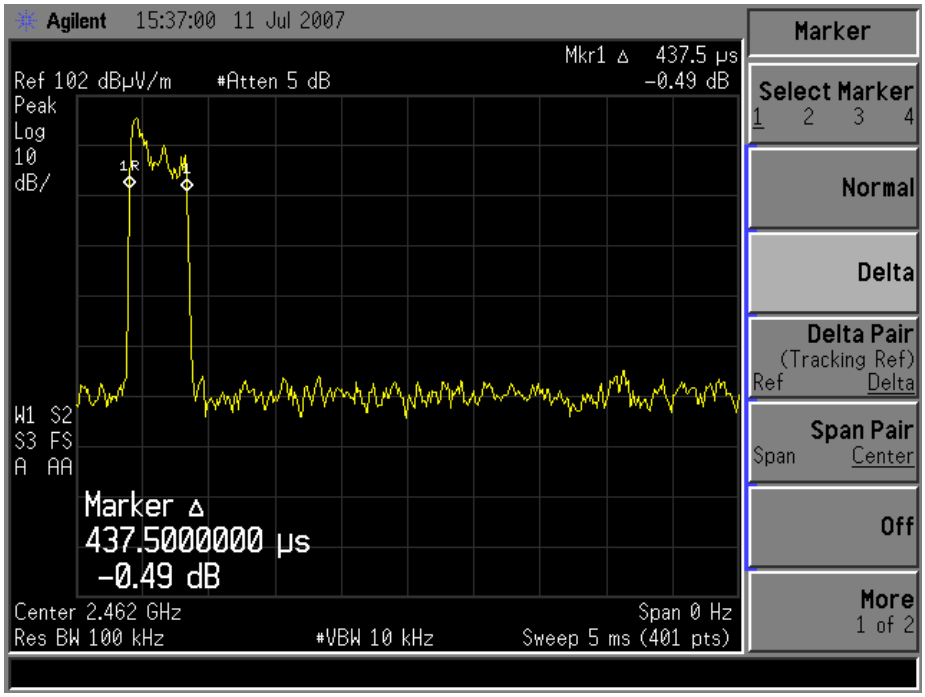
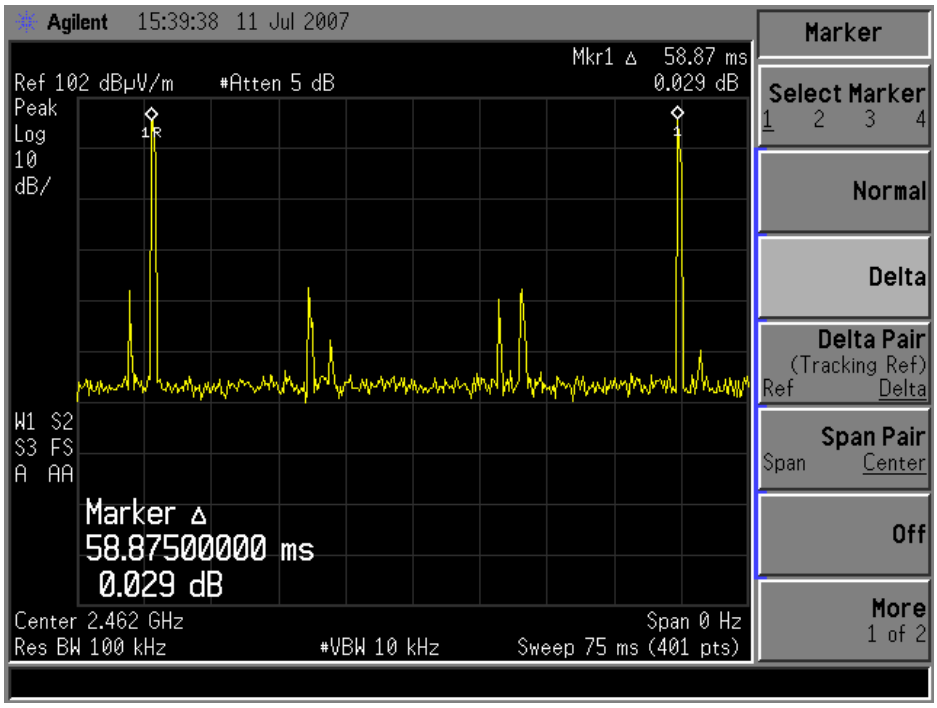
ANNEX 5

Number of hopping


Agilent 15:37:00 11 Jul 2007
Mkr1 Δ 437.5 µs
Ref 102 dBµV/m #Atten 5 dB -0.49 dB
Peak
Log
10
dB/
1R
1
W1 S2
S3 FS
A AA
Marker Δ
437.5000000 µs
-0.49 dB
Center 2.462 GHz
Span 0 Hz
Res BW 100 kHz
#VBW 10 kHz
Sweep 5 ms (401 pts)
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Delta
Span Pair
Span Center
Off
More
1 of 2


Agilent 15:39:38 11 Jul 2007
Mkr1 Δ 58.87 ms
Ref 102 dBµV/m #Atten 5 dB 0.029 dB
Peak
Log
10
dB/
1R
1
W1 S2
S3 FS
A AA
Marker Δ
58.87500000 ms
0.029 dB
Center 2.462 GHz
Span 0 Hz
Res BW 100 kHz
#VBW 10 kHz
Sweep 75 ms (401 pts)
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Delta
Span Pair
Span Center
Off
More
1 of 2