RR-030-M42-07-102772-2-A-FL-STD

"This report cancels and replaces the test report N° RR-030-M42-07-102772-2-A Edition 0."

E.M.C Test Report

According to the standard:
FCC PART 15 :2007

Equipment under test:
GPS X-970T

FCC ID :
VLYPN3X003

Company:
ViaMichelin

DISTRIBUTION: MR. MAIGROT-GUAY **(Company:** ViaMichelin)

Number of pages: 46 with 5 annexes

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			Name	Visa	Name	Visa
1	16/10/07	Totally reviewed	F. LHEUREUX	F.L	F. GALVIN	

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TEST CERTIFICATION FOR:	Fcc Certification
NAME OF THE EQUIPMENT UNDER TEST:	GPS X-970T
Reference:	ViaMichelin Navigation X-970T – PR3C HYNIX
Serial number:	7301115880
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 07th, 08th and 09th 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: 2007

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

ANSI C63.4: 2003

Methods of Measurement of Radio-Noise Emissions from Low-voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

Public Notice DA 00-705

Filing and Measurement Guideline for Frequency Hopping Spread Spectrum Systems.

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:	79
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 4, 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 380 µs (see annex 5). During 79 channels 0.4 s (part 15) = 31.6 s any channel is used 616 times then 616 x 380 µs = 234.1 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: 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)
120 Vac power supply charger	LISN	80

Frequency band	Tested cable	Resolution bandwith	Video bandwith	Detection mode
150kHz-30MHz	120 Vac power supply charger	10kHz	30kHz	Peak
150kHz-30MHz	120 Vac power supply charger	10kHz	30kHz	Average

Test method deviation: NONE

Test configuration photographs:

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

Frequency range (MHz)	Limit for class B (dBµV)	
	Quasi-peak	Average
0,15 to 0,5	66 - 56	56 - 46
0,5 to 5	56	46
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	Date of validated
0000	Software Bat-ecm	Nexio	V.1.3.9.6	
0019	Receiver	Hewlett Packard	HP 8568 B	25/05/2009
0237	Limiter	Hewlett Packard	11947A	04/12/2008
1104	LISN	PMM	L2 - 16	06/10/2008
1804	Test enclosure	Emitech	JD	
2798	Cable	Cables&Connectiques	N-2m	06/08/2008
4047	Cable	Cables&Connectiques	N-2m	01/07/2009

Results:

Curve reference	Comments
Curve 1	Measurement of peak and average detection on wire 1
Curve 2	Measurement of peak and average detection on wire 2

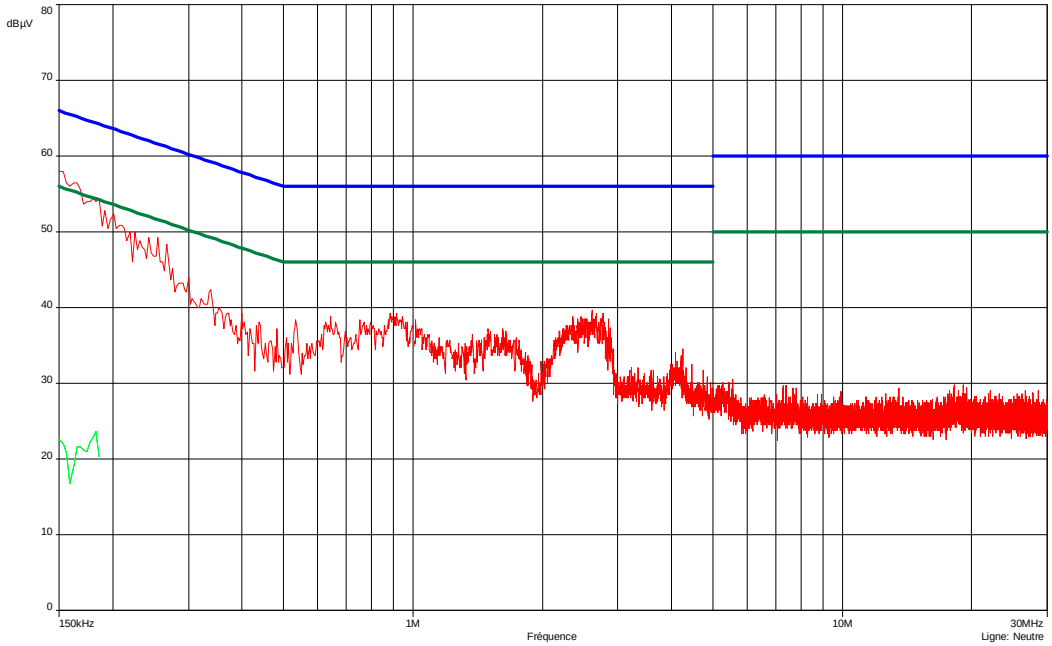
Observation during the test:

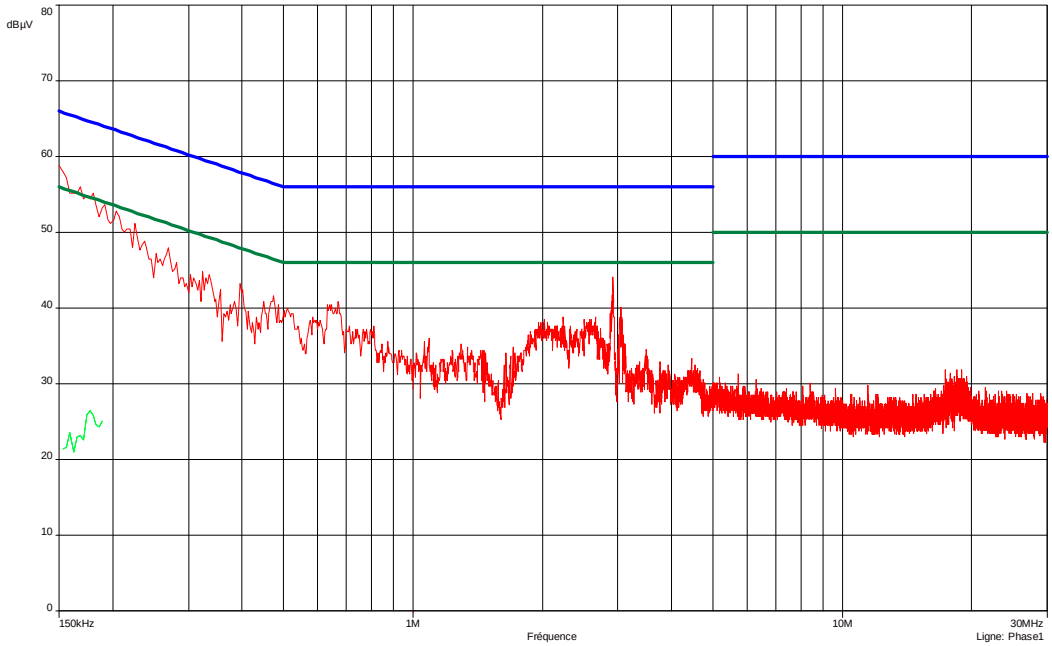
The equipment complies with the requirement of the FCC PART 15.207: 2007

GSP X-970T

MEASUREMENT OF CONDUCTED EMISSION ON AC MAINS PORTS
POWER SUPPLY 120 Vac, Peak detection (red) and Average detection (green)
BLUETOOTH MODE, AND LOAD MODE

Curves 1 and 2
14/08/2007





Class: B of the standard

7. *MAXIMUM PEAK POWER MEASUREMENT*

Standard: FCC PART 15: 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	Date of validated
187	OATS	Emitech	-	17/08/2008
213	Power supply	Sodilec	SDR 60/10	
1097	High pass filter	Trilithic	6HC1300-2.5-KK	23/04/2009
2205	Spectrum analyzer	Agilent	E7405A	21/07/2008
2341	Antenna mast	HD GmbH	MA 240	
2342	Mast controller	HD GmbH	HD 100	
3374	Antenna	Emco	3115	20/03/2008
2896	Cable	Cables&Connectiques	13m	23/04/2009

Equipment under test operating condition:

EUT is 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): 18
Relative humidity (%): 80

Power source: 12 Vd.c.

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

Results:

Polarization of test antenna: horizontal (height: 152 cm, Az: 306°).
Position of equipment: Screen front side

Sample n°1 Channel 1 (2402 MHz) Curve 3

		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	57.65	3.8	28.8	90.25	1.546×10^{-3}

Sample n°2 Channel 40 (2450 MHz) Curve 4

		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	59.46	3.8	28.8	92.06	1.609×10^{-3}

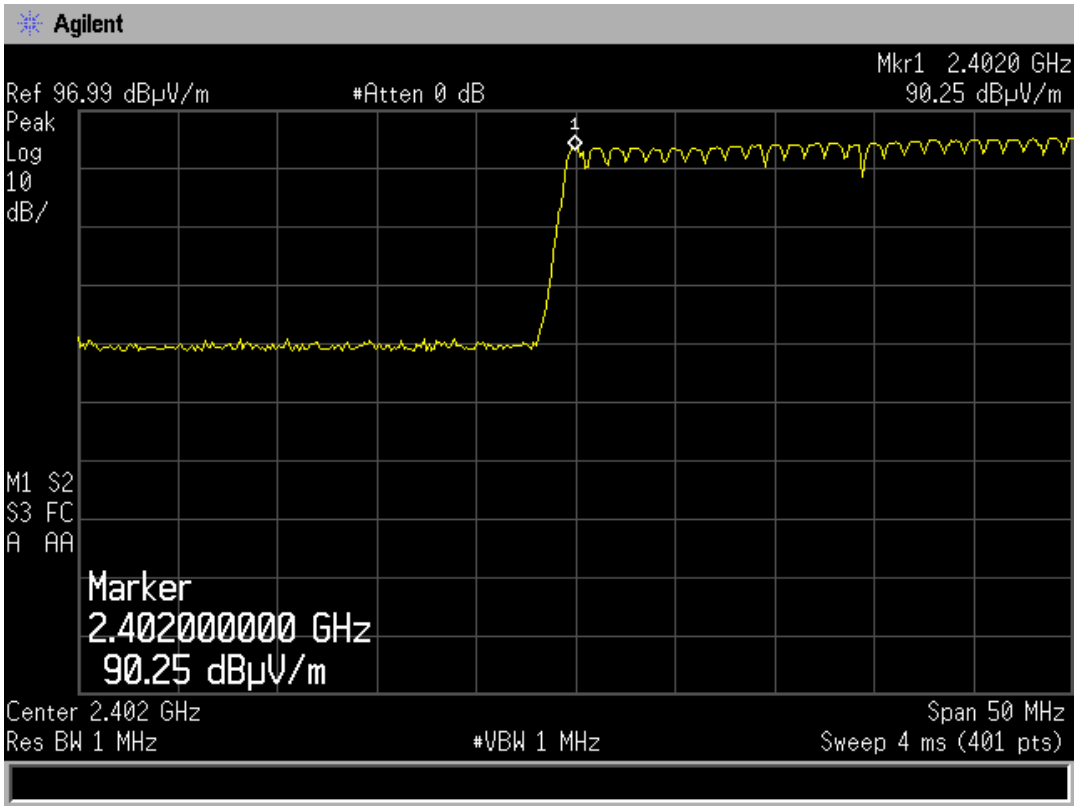
Sample n°3 Channel 79 (2480 MHz) Curve 5

		Level dBµV/m	Cable loss dB	Antenna factor dB	Electro-magnetic field (dBµV/m)	P* (W)
Normal test conditions	Nominal power source (V): 12	60.51	3.8	28.8	93.11	1.646×10^{-3}

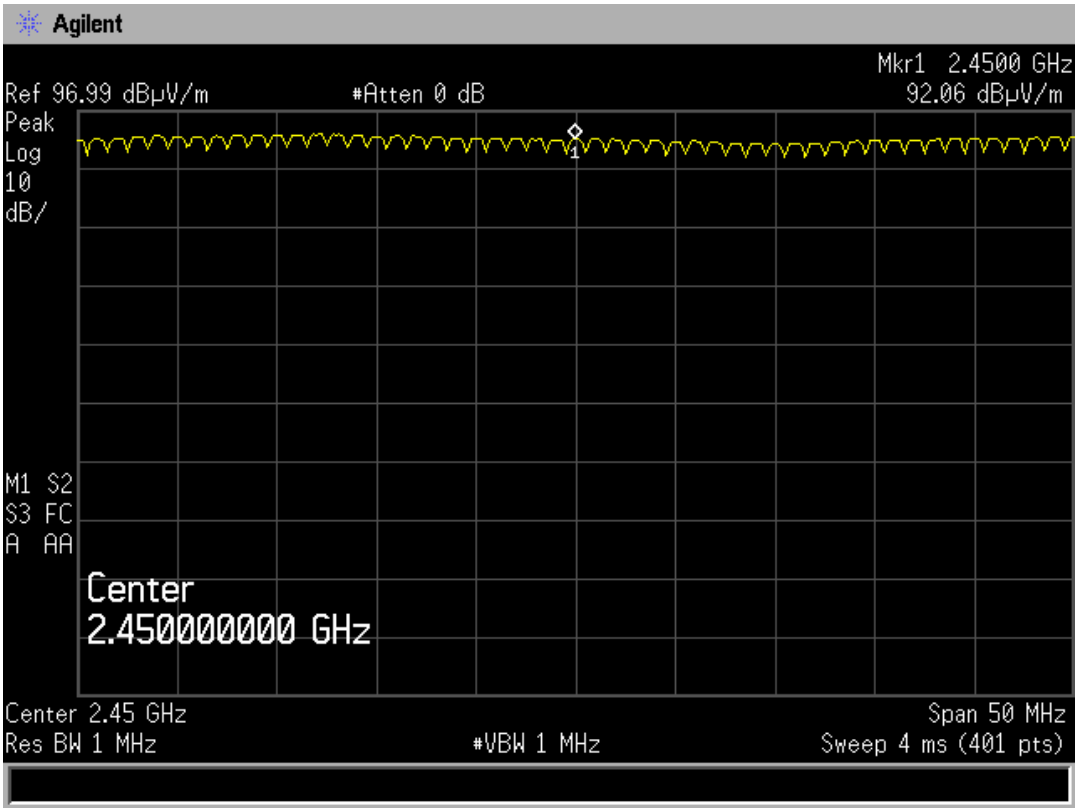
* $P = (E \times d)^2 / (30 \times Gp)$ with d = 3m and Gp = 1.58

Test conclusion: Complies with the requirements of the standard.

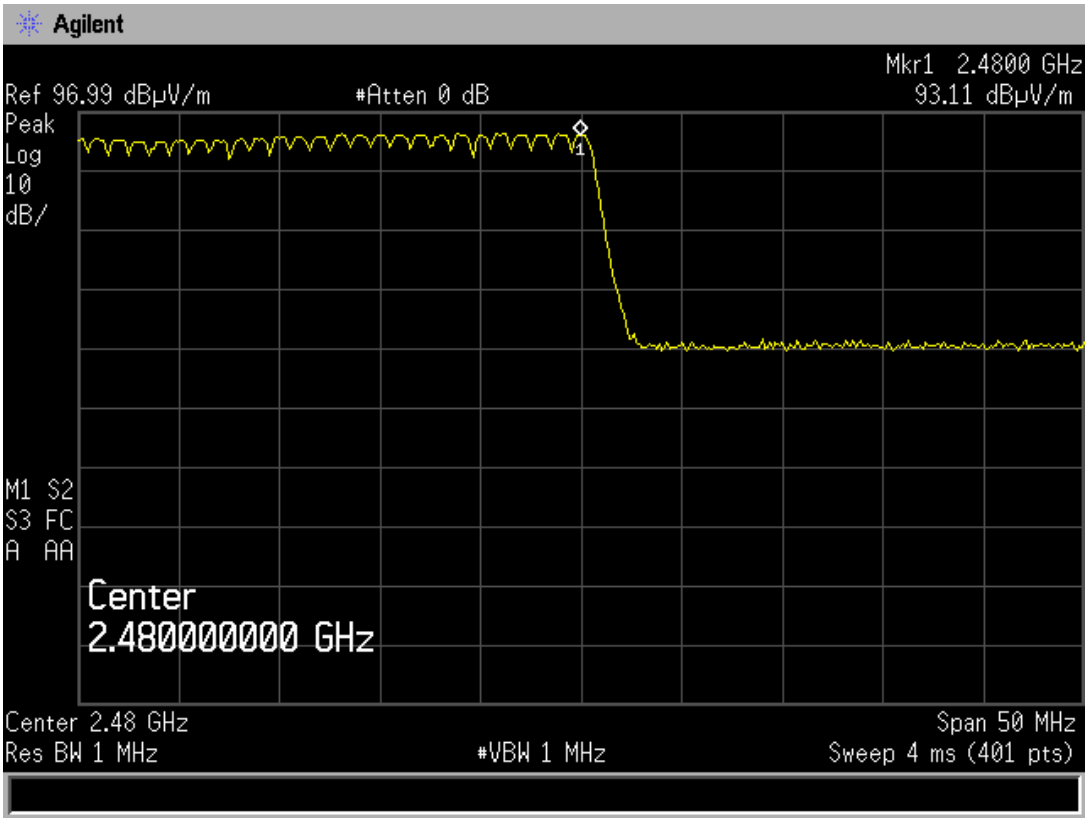
Curve 3



Curve 4



Curve 5


Agilent
Mkr1 2.4800 GHz
Ref 96.99 dBµV/m
#Atten 0 dB
93.11 dBµV/m
Peak
Log
10
dB/
M1 S2
S3 FC
A AA
Center
2.480000000 GHz
Center 2.48 GHz
Span 50 MHz
Res BW 1 MHz
#VBW 1 MHz
Sweep 4 ms (401 pts)

8. *BAND EDGE MEASUREMENT*

Standard: FCC PART 15: 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	Date of validated
187	Open site	Emitech	Aunainville	17/08/2008
213	Power supply	Sodilec	SDR 60/10	
1097	High pass filter	Trilithic	6HC1300-2.5-KK	23/04/2009
2205	Spectrum analyzer	Agilent	E7405A	21/07/2008
2341	Antenna mast	HD GmbH	MA 240	
2342	Mast controller	HD GmbH	HD 100	
2896	Cable	Cables&Connectiques	N-13m	23/04/2009
3374	Antenna	Emco	3115	20/03/2008

Equipment under test operating condition:

EUT is 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): 23
Relative humidity (%): 60

Results:

Polarization of test antenna: horizontal (height: 152 cm, Az: 306°).
Position of equipment: Screen front side

Lowest frequency limit: from 2310 MHz to 2390 MHz, curve n° 6
Upper Band Edge: from 2483.5 MHz to 2500 MHz, curve n° 7

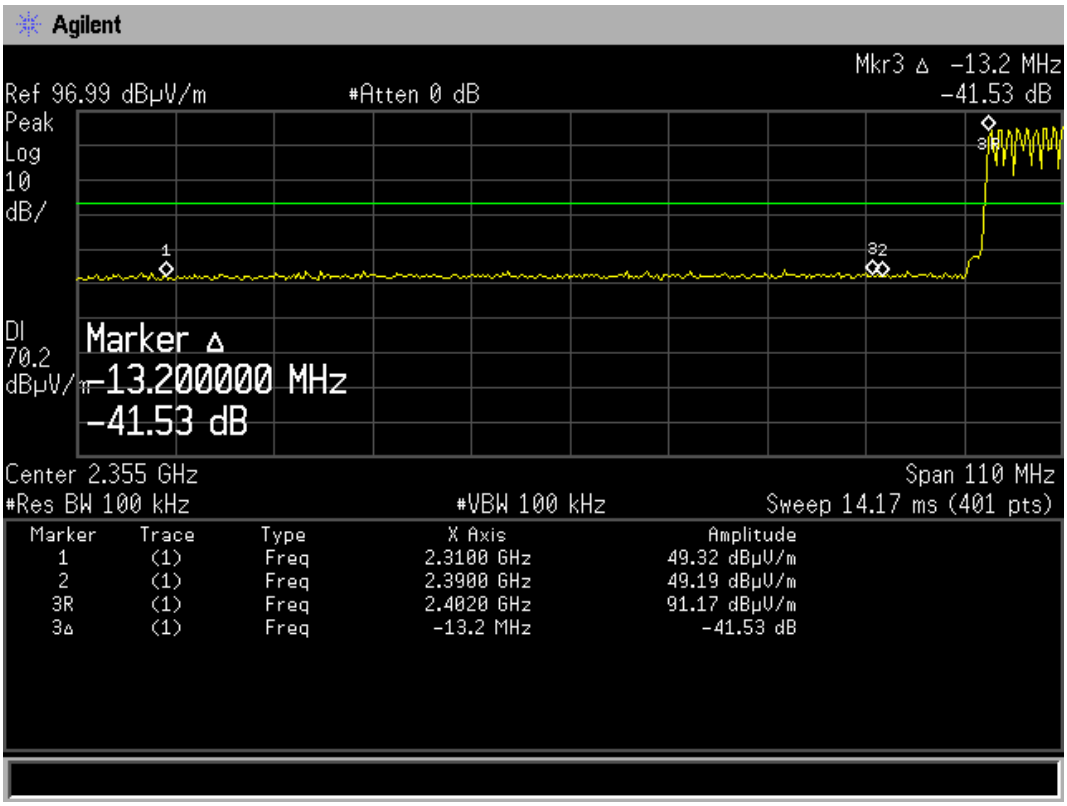
Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB)*	Calculated Max Out of Band Emission Level (dBµV/m)**	Limit (dBµV/m)	Margin (dB)
2402	91.17	Peak	2388.8	-41.53	49.64	71.17	29.64
2480	92.86	Peak	2483.6	-43.62	49.24	72.86	23.62

* 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

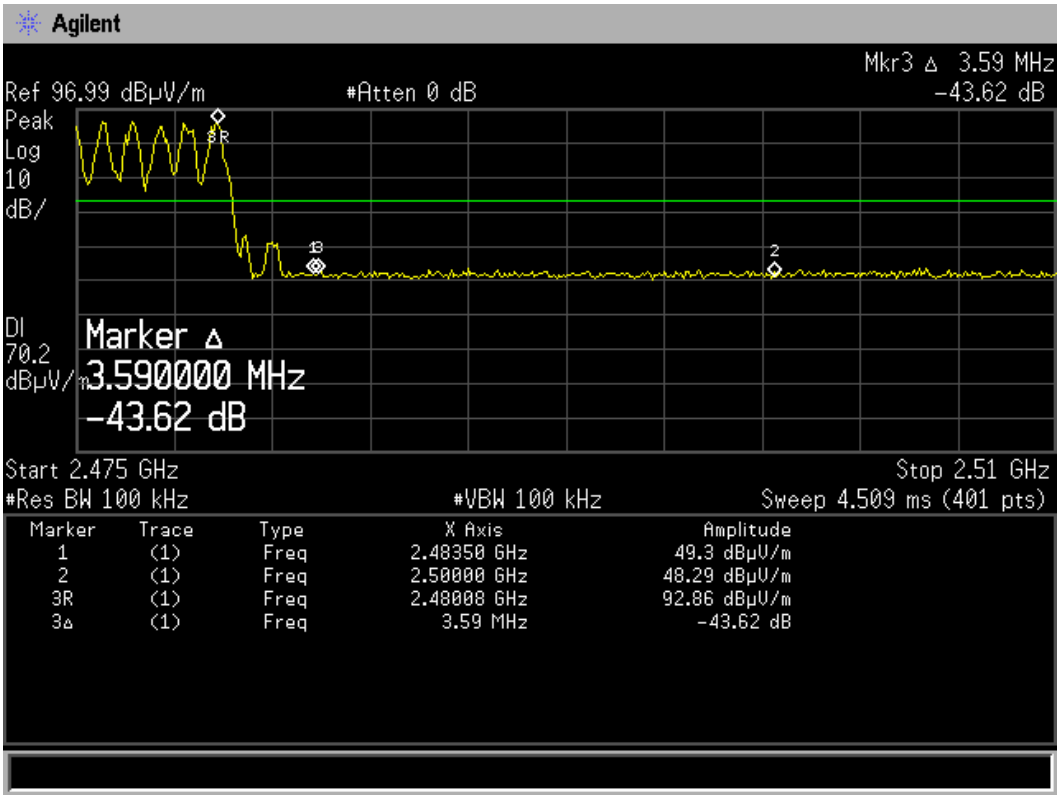
Test conclusion:

Complies with the requirements of the standard.

Curve 6



Curve 7


Agilent
Mkr3 Δ 3.59 MHz
Ref 96.99 dBµV/m
#Atten 0 dB
-43.62 dB
Peak
Log
10
dB/
3R
1Δ
2
DI
70.2
dBµV/m
Marker Δ
3.590000 MHz
-43.62 dB
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 49.3 dBµV/m
2 (1) Freq 2.50000 GHz 48.29 dBµV/m
3R (1) Freq 2.48008 GHz 92.86 dBµV/m
3Δ (1) Freq 3.59 MHz -43.62 dB

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

Standard: FCC PART 15: 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 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: From 30 MHz to harmonic 10 (F carrier $\leq$ 10 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: 75 dBµV/m

Instrumentation test list:

Nr Emitech	Category	Brand	Type	Date of validated
187	OATS	Emitech	-	17/08/2008
213	Power supply	Sodilec	SDR 60/10	
1045	Horn antenna	Oritel	CM 42/25	20/01/2008
1057	Voltmeter	Rohde & Schwarz	ESVS10	02/09/2009
1097	High pass filter	Trilithic	6HC1300-2.5-KK	23/04/2009
1144	Biconical antenna	Schwarzbeck	VHBA 9123	19/10/2009
1529	High pass filter	Trilitic	5EHLX500-3-KK	23/04/2009
2205	Spectrum analyzer	Agilent	E7405A	21/07/2008
2341	Antenna mast	HD GmbH	MA 240	
2342	Mast controller	HD GmbH	HD 100	
2450	Cable	Cables & Connectiques	HF 12m	30/03/2008
2451	Cable	Cables&Connectiques	HF 2m	30/03/2008
2452	Cable	Cables & Connectiques	HF 13m	04/06/2008
2864	Cable	Câbles & Connectiques	N-SMA	23/04/2009
2896	Cable	-	N-13m	23/04/2009
3106	Antenna	Schwarzbeck	UHALP 9108	17/08/2009
3229	Preamplifier	Miteq	AMF-6D-010250-70-7P	05/06/2008
3374	Antenna	Emco	3115	20/03/2008

Results:

VERTICAL POLARIZATION

Frequency (MHz)	Polarization	Azimut (degrees)	Antenna height (cm)	Measure (dBµV/m)	Standard limit (dBµV/m)	Δ (dB)	Comments
36.500	Horizontal	0	350	21.2	40.0	18.8	Pass

No frequencies are observed between 36.500 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: 2007.

« □□□ *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°1057 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	23.6	-	-
300	14.3	700	20.4
400	16.1	800	20.6
500	17.4	900	21.7
600	18.6	1000	22.0

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

External and Internal photographs


10:56
E-SE
200 m
D132.2
La Chapelle-d'Aunainville
TMC
ViaMichelin


PR3C HYNIX
ViaMichelin
Engineering Sample
Not For Sale
7301115880
RESET


ViaMichelin
Engineering Sample
Not For Sale
7301115880

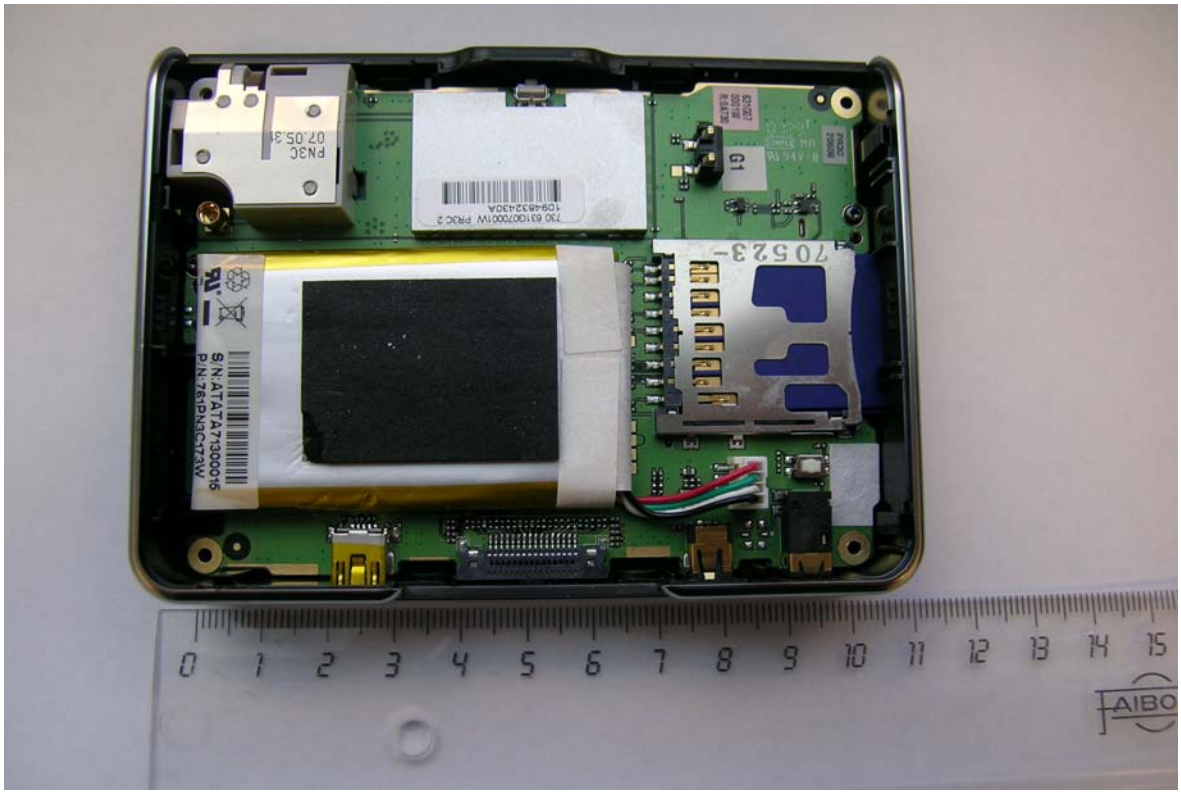

ViaMichelin
Engineering Sample
Not For Sale

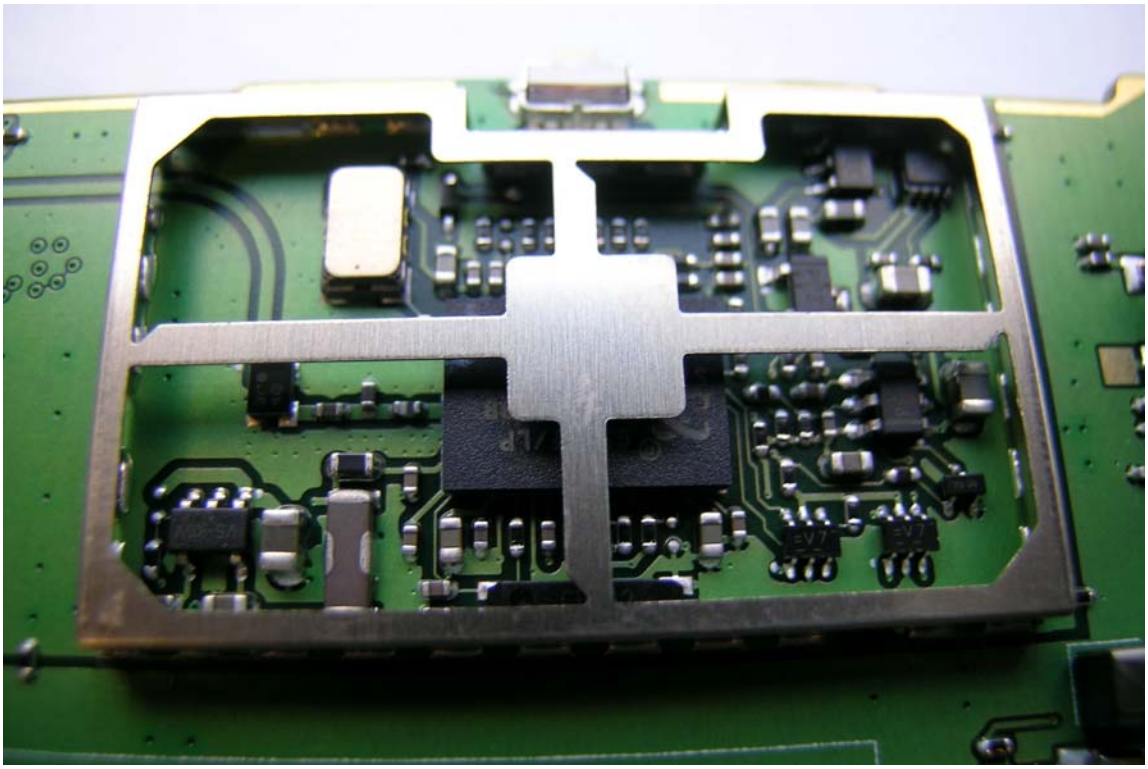

ATPI-68HT0502-NB2.3
INPUT:10~30V 1.3A MAX
OUTPUT:5V 2A
Atech
LPS
E13
10R-022456
ViaMichelin

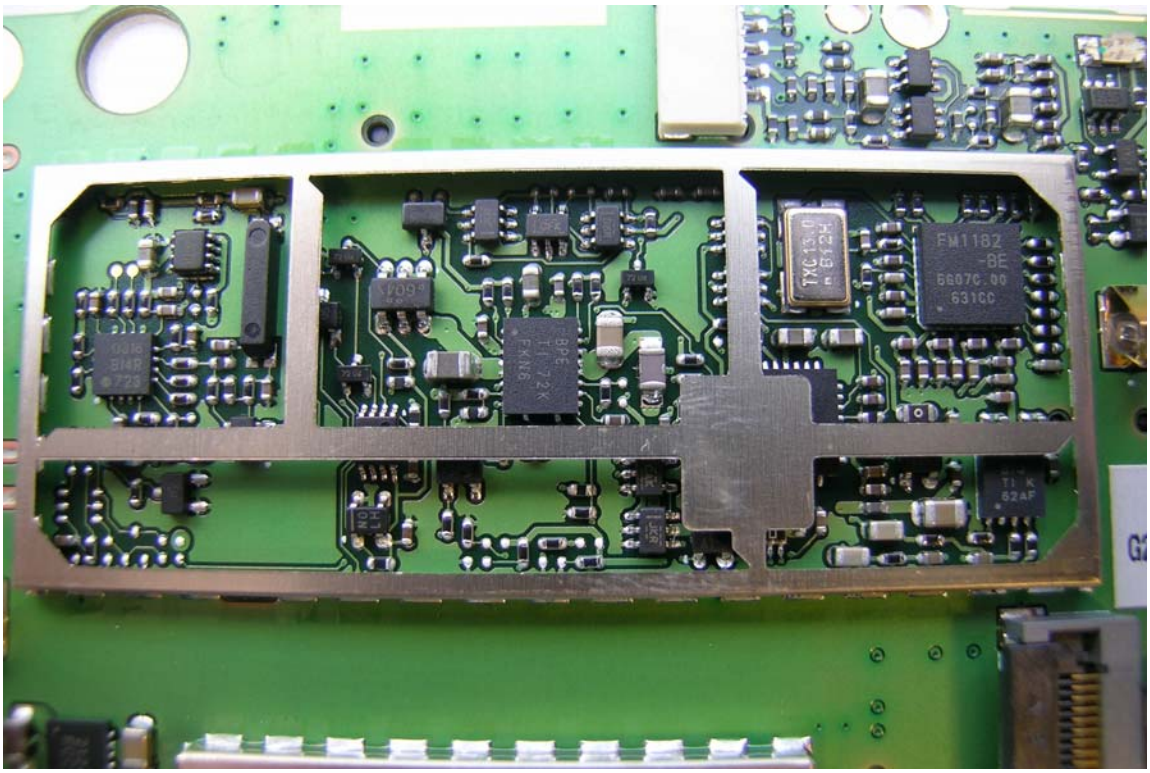

TMC
ViaMichelin
DC: 5V 2A
Made in China
71801890147

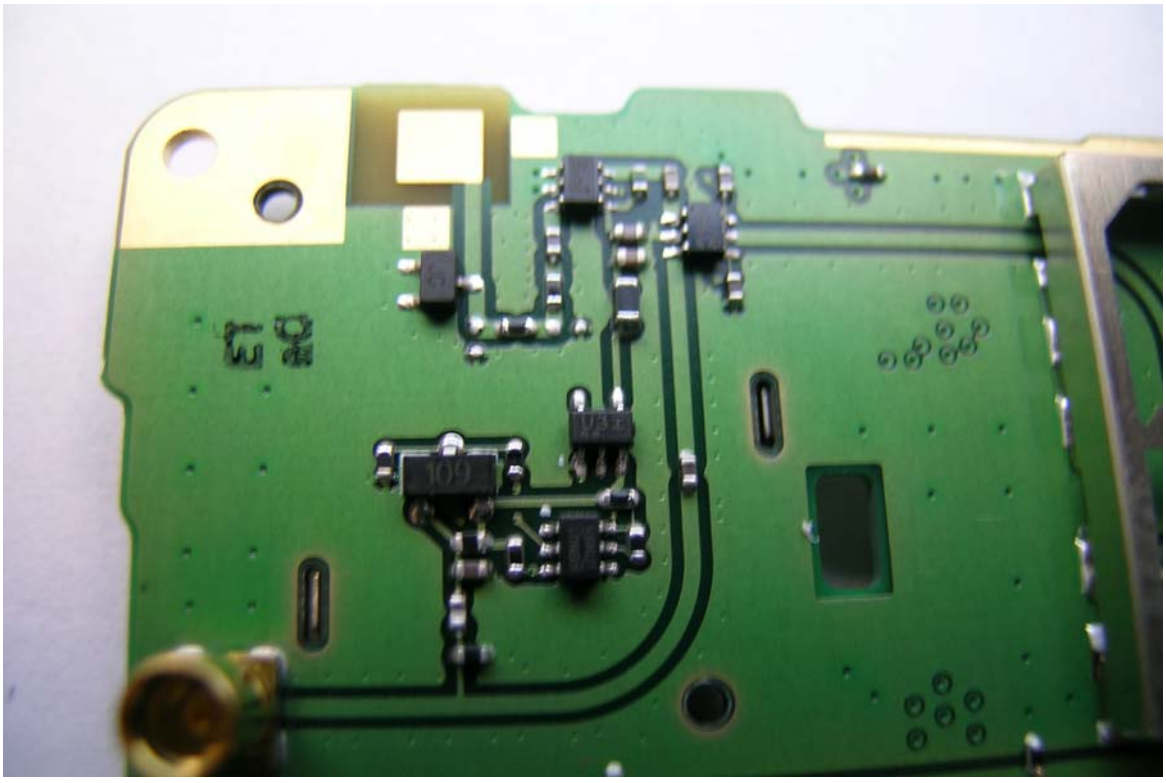

ViaMichelin
PN: PNX970T_ANTF_AP
Model Name:
ViaMichelin
TMC Antenna
Made in China
728002051185517

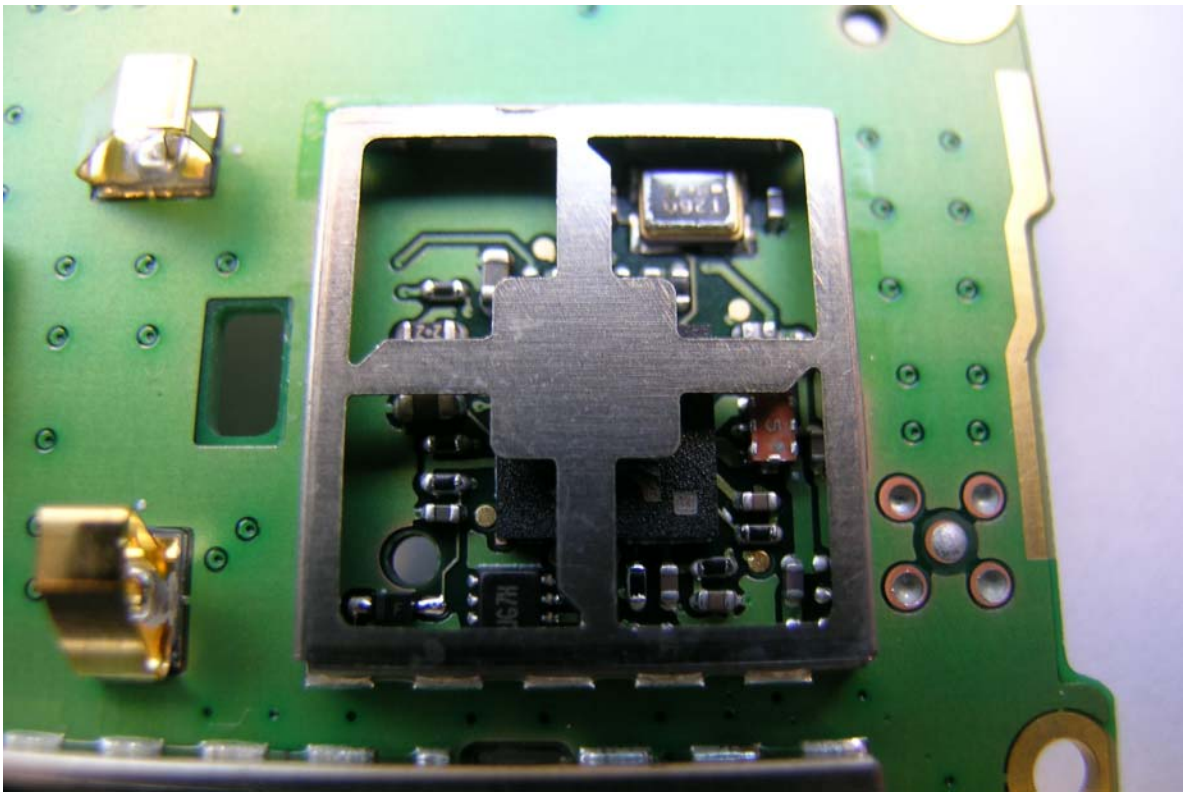

ViaMichelin
XQWZ
SWITCHING POWER SUPPLY
电源适配器 電源供應器
MODEL 型号(型號): PSC05R-050CP
INPUT 输入(輸入): 100-240V~ 0.2A 50-60Hz
OUTPUT 输出(輸出): +5V⎓ 1.0A MAX. LPS
EFFICIENCY LEVEL Q02441
E127643
LISTED
I.T.E. POWER SUPPLY
N136
A049405
052124-11
R33084
DATE 0717
MADE IN CHINA 中国制造
(PE)-R

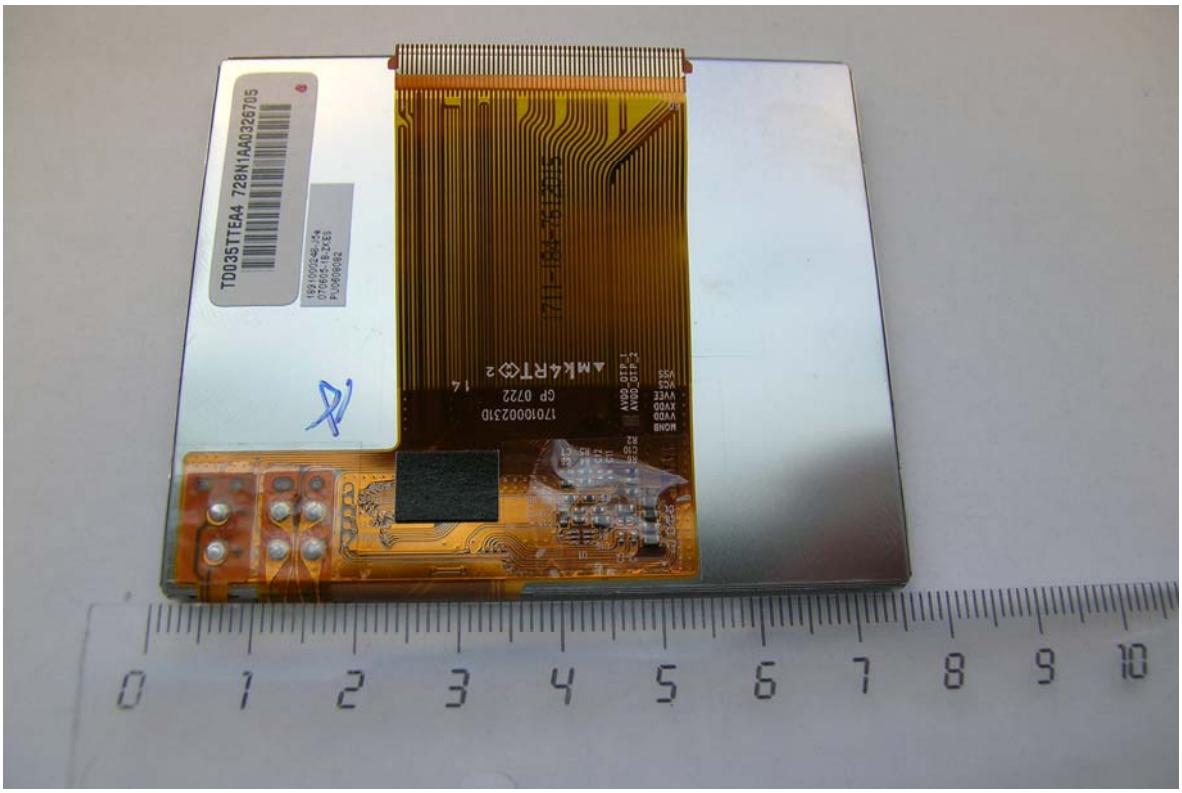





FM1182
-BE
6607C.00
631CC






TD035TTEA4 728N1AA0326705
0 1 2 3 4 5 6 7 8 9 10

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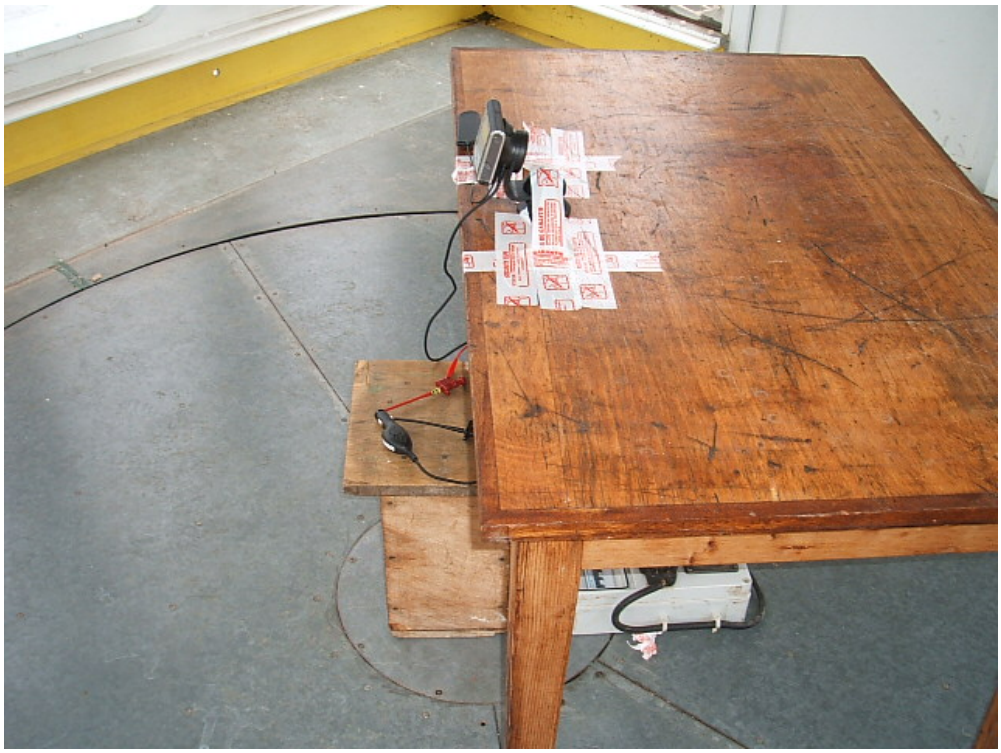
ANNEX 3

Test setup photographs

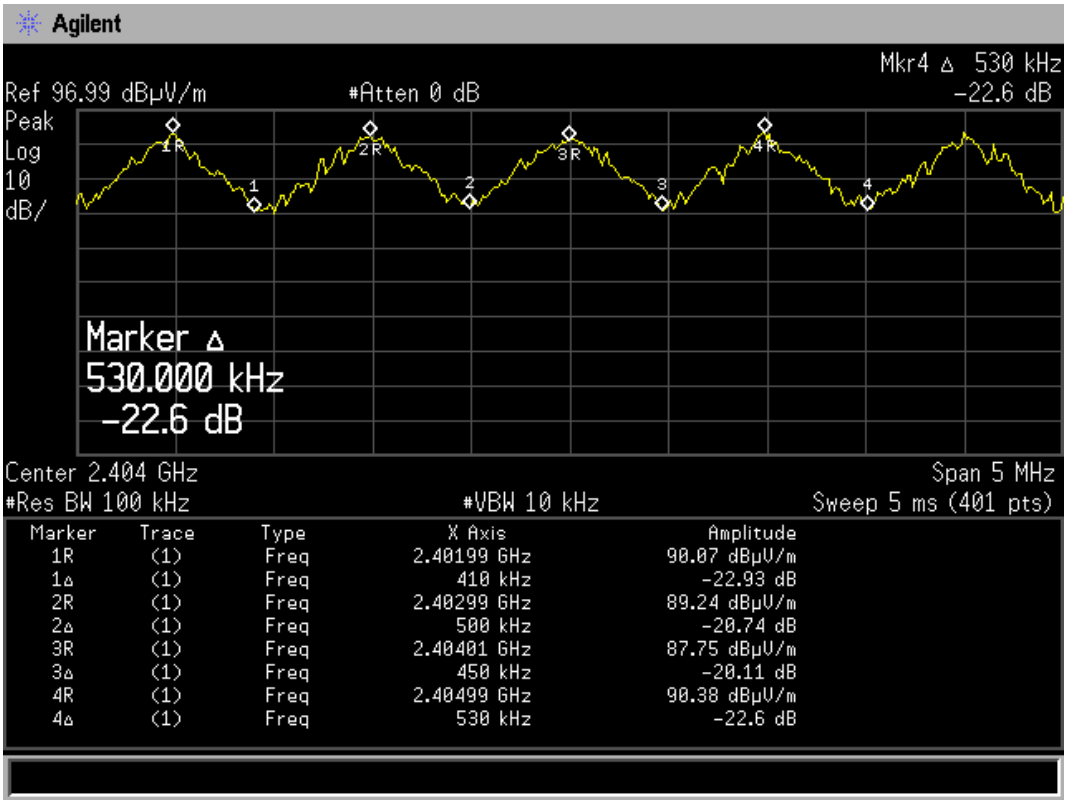

EMITECH ILE
partenaire unique

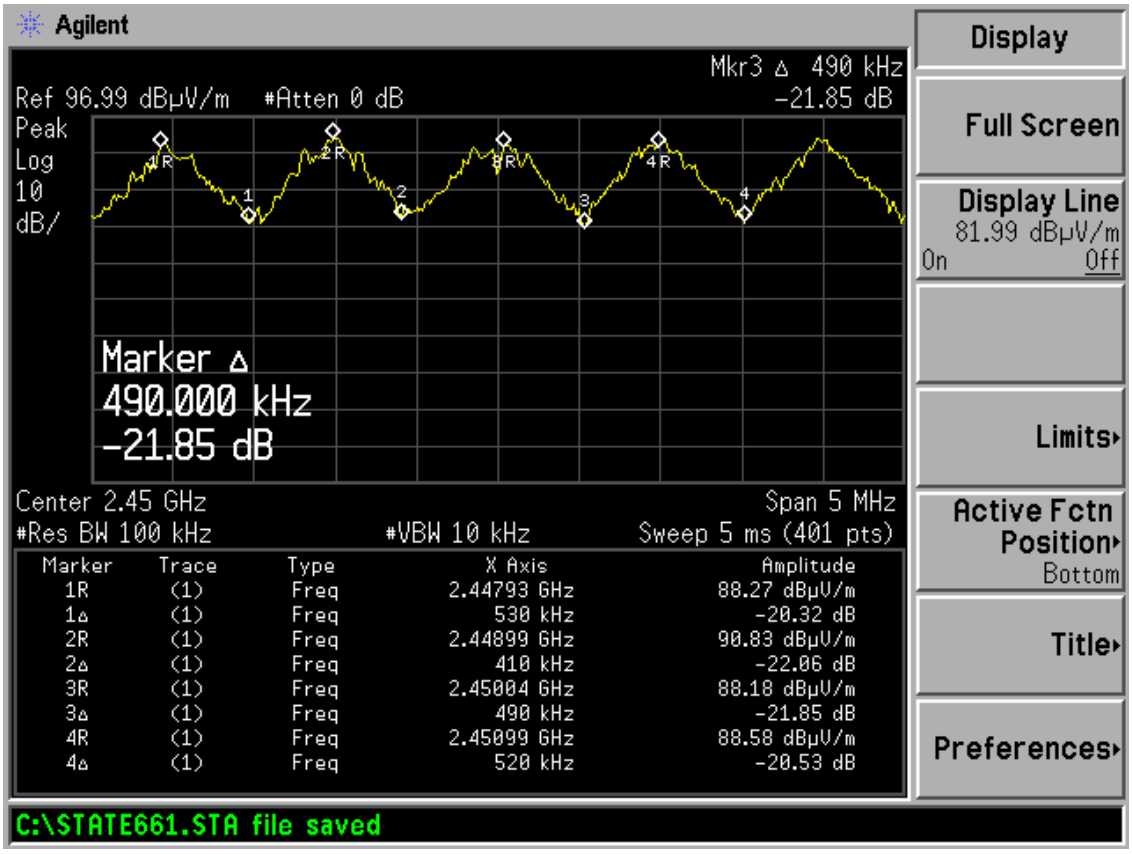

MITECH ILE
partenaire unique

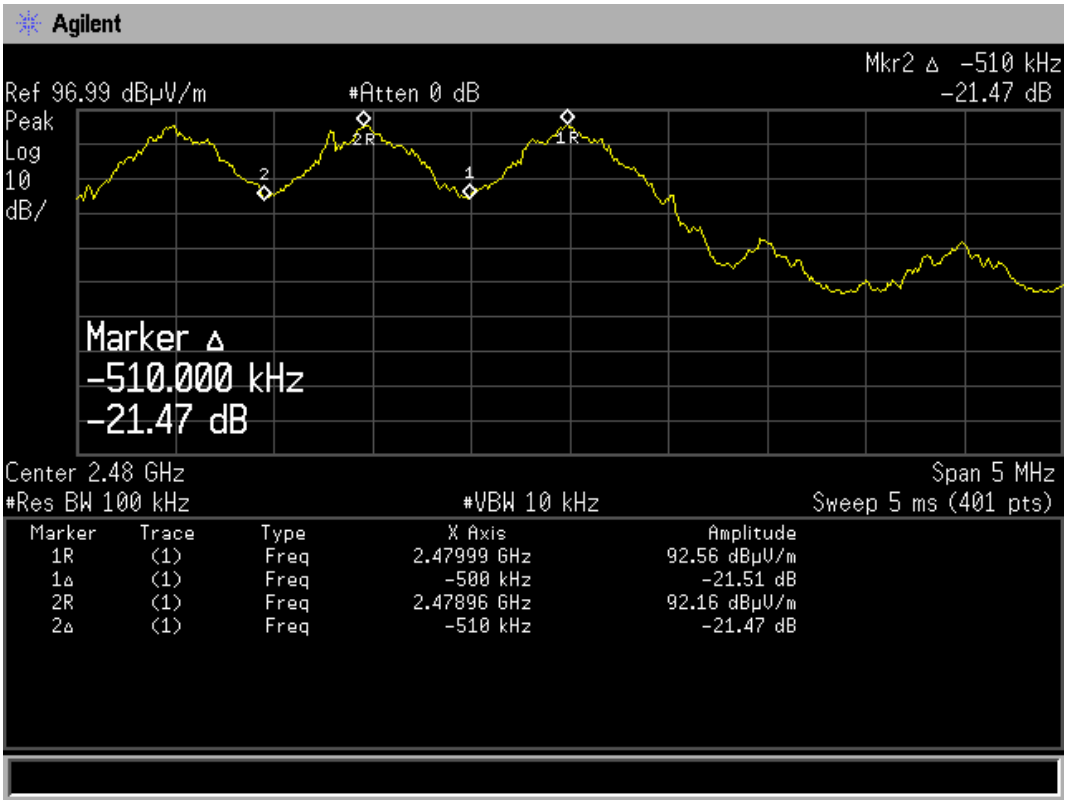


ANNEX 4

Channel separation


Agilent
Mkr4 Δ 530 kHz
-22.6 dB
Ref 96.99 dBµV/m
#Atten 0 dB
Peak
Log
10
dB/
Marker Δ
530.000 kHz
-22.6 dB
Center 2.404 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 10 kHz
Sweep 5 ms (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.40199 GHz 90.07 dBµV/m
1Δ (1) Freq 410 kHz -22.93 dB
2R (1) Freq 2.40299 GHz 89.24 dBµV/m
2Δ (1) Freq 500 kHz -20.74 dB
3R (1) Freq 2.40401 GHz 87.75 dBµV/m
3Δ (1) Freq 450 kHz -20.11 dB
4R (1) Freq 2.40499 GHz 90.38 dBµV/m
4Δ (1) Freq 530 kHz -22.6 dB


Agilent
Mkr3 Δ 490 kHz
-21.85 dB
Ref 96.99 dBµV/m
#Atten 0 dB
Peak
Log
10
dB/
Marker Δ
490.000 kHz
-21.85 dB
Center 2.45 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 10 kHz
Sweep 5 ms (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.44793 GHz 88.27 dBµV/m
1Δ (1) Freq 530 kHz -20.32 dB
2R (1) Freq 2.44899 GHz 90.83 dBµV/m
2Δ (1) Freq 410 kHz -22.06 dB
3R (1) Freq 2.45004 GHz 88.18 dBµV/m
3Δ (1) Freq 490 kHz -21.85 dB
4R (1) Freq 2.45099 GHz 88.58 dBµV/m
4Δ (1) Freq 520 kHz -20.53 dB
Display
Full Screen
Display Line
81.99 dBµV/m
On Off
Limits
Active Fctn
Position
Bottom
Title
Preferences
C:\STATE661.STA file saved


Agilent
Mkr2 Δ -510 kHz
-21.47 dB
Ref 96.99 dBµV/m
#Atten 0 dB
Peak
Log
10
dB/
2R
1R
2
1
Marker Δ
-510.000 kHz
-21.47 dB
Center 2.48 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 10 kHz
Sweep 5 ms (401 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.47999 GHz 92.56 dBµV/m
1Δ (1) Freq -500 kHz -21.51 dB
2R (1) Freq 2.47896 GHz 92.16 dBµV/m
2Δ (1) Freq -510 kHz -21.47 dB

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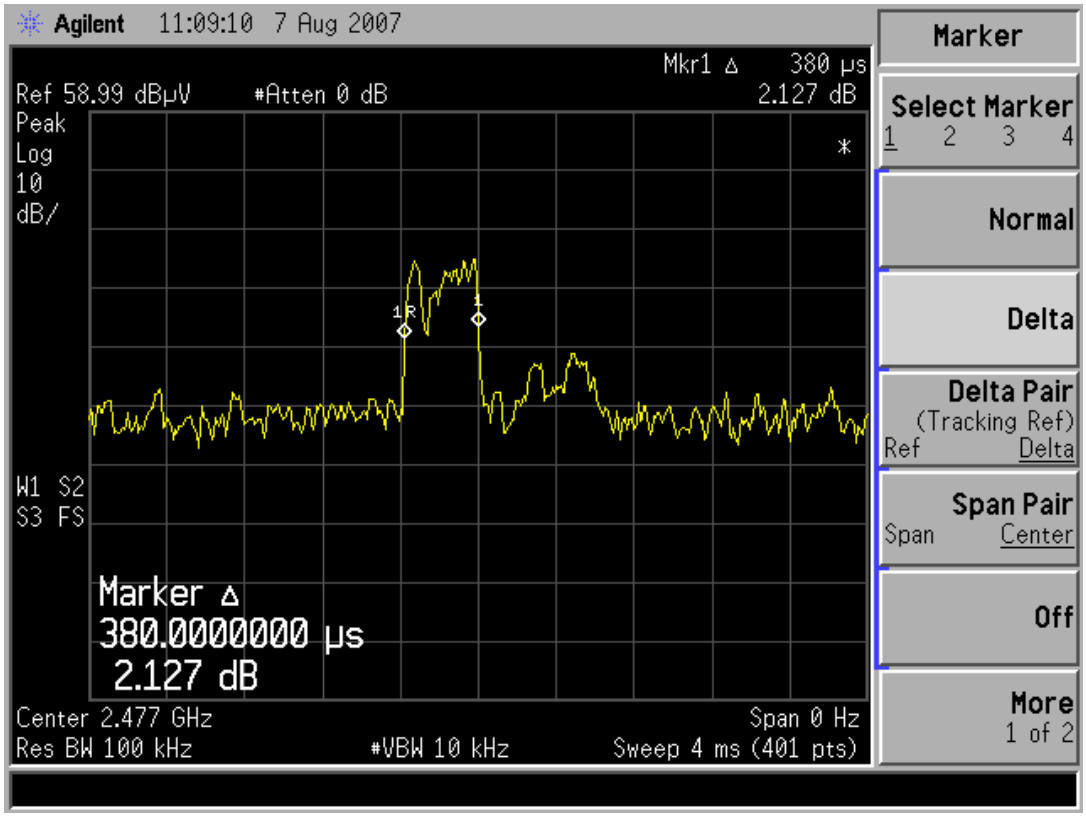
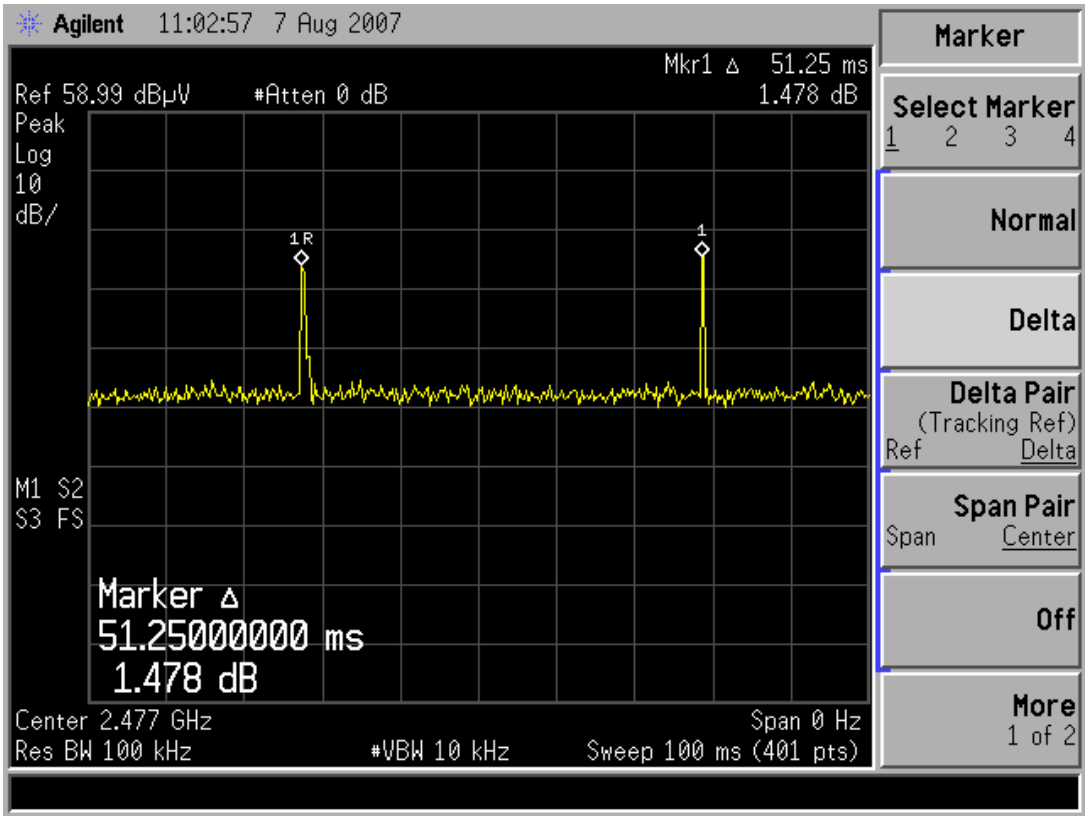
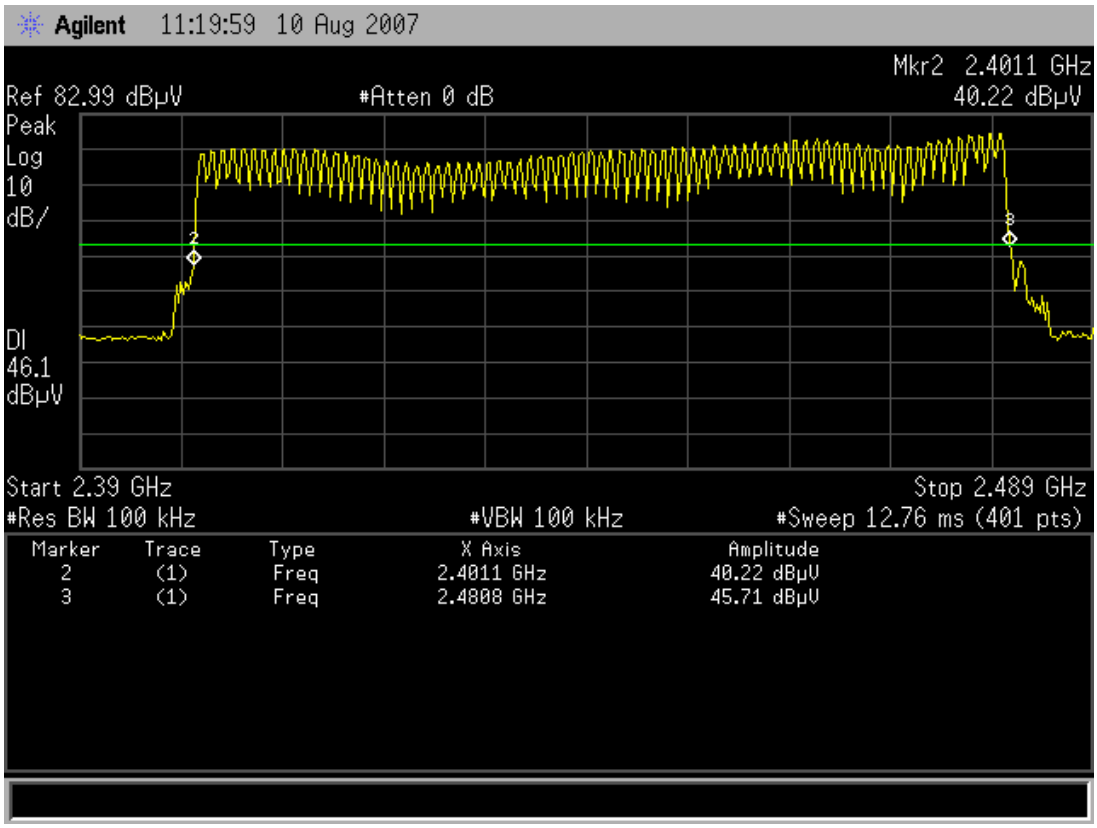
ANNEX 5

Number of channels and average time of occupany any frequency


Agilent 11:09:10 7 Aug 2007
Mkr1 Δ 380 µs
Ref 58.99 dBµV #Atten 0 dB 2.127 dB
Peak
Log
10
dB/
W1 S2
S3 FS
Marker Δ
380.0000000 µs
2.127 dB
Center 2.477 GHz
Span 0 Hz
Res BW 100 kHz
#VBW 10 kHz
Sweep 4 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 11:02:57 7 Aug 2007
Mkr1 Δ 51.25 ms
Ref 58.99 dBµV #Atten 0 dB 1.478 dB
Peak
Log
10
dB/
M1 S2
S3 FS
Marker Δ
51.25000000 ms
1.478 dB
Center 2.477 GHz
Span 0 Hz
Res BW 100 kHz
#VBW 10 kHz
Sweep 100 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 11:19:59 10 Aug 2007
Mkr2 2.4011 GHz
Ref 82.99 dBµV
#Atten 0 dB
40.22 dBµV
Peak
Log
10
dB/
Dl
46.1
dBµV
Start 2.39 GHz
Stop 2.489 GHz
#Res BW 100 kHz
#VBW 100 kHz
#Sweep 12.76 ms (401 pts)
Marker Trace Type X Axis Amplitude
2 (1) Freq 2.4011 GHz 40.22 dBµV
3 (1) Freq 2.4808 GHz 45.71 dBµV