

Bellaterra: **April 20th, 2005**

File number : **5006132-M1**

Petitioner's reference: **INGENICO BARCELONA, S.A.**
Via Augusta 71,73
08174 Sant Cugat del Vallès
BARCELONA – SPAIN

On its behalf:
Mr. Josep Maria Galindo

File number 5006132 from April 20th, 2005 has been cancelled and substituted by file number 5006132-M1. Modifications performed:
Test FCC subpart C section 15.247 b) 1 done again with new Bluetooth module. Only handset I7780 BTv2 s/n 8136416413 tested again.

Federal Communications Commission:

FRN:0007-0391-00

Industry Canada:

File Number: IC 5766

TEST REQUESTED

Electromagnetic compatibility

FCC rules (CFR47 Part 15): 2004, subpart C: Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement.

Radio Standards Specification (RSS-210): 2001: Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands).

INDEX

1.0 EQUIPMENT RECEIVED AND TESTED

1.1 Test configuration

1.2 Communication cables

2.0 TESTING PROCEDURE

2.1 Test procedures

2.2 Measuring equipment used

2.3 Measuring uncertainties

2.4 Environmental conditions

3.0 RESULTS

3.0.1 Results after modifications

3.0.2 Results after modifications

3.1 Conformity to emissions standards

4.0 IDENTIFICATION PICTURES

4.1 TEST CONFIGURATION

5.0 ANNEX: DETAIL OF RESULTS

1.0 EQUIPMENT RECEIVED AND TESTED

Payment terminal (hand held terminal + base station + power supply) brand INGENICO BARCELONA, model I7770+ 7770BAS+ ALI0075 BTv2, s/n 8136416413 + 8141404017 + 452003 (*)



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This document consists of 32 pages of which 25 are annexes.

Modifications:

Kitagawa ferrites ref: SFC-6 is added to the telephone cable

Test product reception(*):	2005-01-17
Test initial date(*):	2005-01-17
Test final date(*):	2005-02-18

(*) This modified file also contains a hand held terminal brand INGENICO, model I7780 BTv2 s/n 8136416413 with new Bluetooth module; test product reception: 2005-06-08, test initial date: 2005-06-08 and test final date: 2005-06-08



1.1 Test configuration

Power supply AC: 120v 60Hz.

Set-up: on - table.

For continuous interference:Automatic test mode: Burn-in test and charging battery when base and terminal tested as a system. (2,4GHz communication between base and terminal)**Others:**Automatic test mode: Burn-in test and charging battery when base and terminal tested as a system. 2,4GHz communication between base and terminal.Terminal locked with base and separated 20metres when base tested aloneTerminal unlocked with base when terminal tested alone**1.2 Communication cables**

Two serial cables loaded with impedances

Telephone cable

2.0 TESTING PROCEDURE

APPLIED STANDARDS FOR EMISSIONS TESTS <u>FCC CFR47 Part 15 rules subpart C</u> Test: ① ☒ Radiated emissions RF (30-1000 MHz) ② ☒ Radiated emissions RF (1-24 GHz) ③ ☒ Continuous interference (150 kHz-30 MHz)	<u>Class</u> ☐ A ☒ B
APPLIED STANDARDS FOR EMISSIONS TESTS <u>FCC CFR47 Part 15 rules subpart C</u> Test: ④ ☒ Section 15.247 (operation within the bands 2400-2483,5 MHz) ⑤ ☒ Section 15.249 (operation within the bands 2400-2483,5 MHz)	
APPLIED STANDARDS FOR EMISSIONS TESTS <u>Radio Standards Specification (RSS-210):2001</u> Test: ⑥ ☒ Section 6.6 (Transmitter AC Wireline Conducted Emissions) ⑦ ☒ Section 6.2.2 (m2): (Non-momentarily Operated Devices – 2400-2483.5MHz) ⑧ ☒ Section 6.2.2 (o): (Non-momentarily Operated Devices – 2400-2483.5MHz Spread Spectrum)	

2.1 Test procedures

Radiated emissions RF: PT-104029.

Continuous conducted emissions: PT-104028.

2.2 Measuring equipment used**Radiated emissions below 1GHz**

- Semianechoic chamber EUROSIELD model TC2 TEST CHAMBER. **Cal. expiration date:** 2006/10/01
- Bilogoperiodic antenna MESS-ELEKTRONIK model VULB 9165 s/n: 2010. **Cal. expiration date:** 2005/07/17
- Turntable HD model DS 430.
- Informatic system HP model D4776N D2845 s/n: FR74350473.
- Quasi Peak adaptor HP model 85650A s/n 2811A01184. **Cal. expiration date:** 2005/08/29
- Preselect HP model 85685A s/n 2837A00829 **Cal. expiration date:** 2005/08/29
- Spectrum analyzer HP model 8566B s/n 3138A08001 **Cal. expiration date:** 2005/08/29
- RF path of radiated emissions SAC2 (30M-1GHz) model W.L GORE (NC) **Cal. expiration date:**

2005/07/29

- Radiated emissions SW (REMS) HP model 85879A

Radiated emissions above 1GHz- Semianechoic chamber EUROSIELD model TC2 TEST CHAMBER. **Cal. expiration date:** 2006/10/01- Horn antenna EMCO model 3115 s/n 4240 **Cal. expiration date:** 2007/08/05

- Turntable HD model DS 430.

- Informatic system HP model D4776N D2845 s/n: FR74350473.

- Spectrum analyzer HP model 8566B s/n 3138A08001 **Cal. expiration date:** 2005/08/29- RF path of radiated emissions SAC2 (1-12GHz) SUCOFLEX **Cal. expiration date:** 2005/09/09

- Radiated emissions SW (REMS) HP model 85879A

Conducted emissions

- Faraday chamber EUROSIELD model RFSD-100 s/n: 1427/97.

- Receiver EMI 9KHz to 230MHz R&S model ESHS-30 s/n: 830289/004 **Cal. expiration date:**

2005/08/18

- LISN 2x10A 50μH 50Ω R&S model ESH3-Z5 s/n: 843012/001 **Cal. expiration date:** 2007/09/14- RF path N° 4 conducted emissions FAC1 **Cal. expiration date:** 2006/02/07

- Informatic system HP model D4776N D2836 s/n: FR74350477.

- Conducted emissions SW EMC AUTOMATION

- External RF path FAC1 SUHNER model RG -223 **Cal. expiration date:** 2007/09/22**Operation within the bands 2400-2483.5MHz**- Receiver EMI HP model 8546A. **Cal. expiration date:** 2005/11/23**2.3 Measuring uncertainties**

Radiated emissions in SAC: Function of the analyzed frequency $\pm 4,3$ dB by default; when it is different, it is given in the result section.

Conducted emissions: ± 2.1 dB.

In all cases, with a confidence level of 95%, $k=2$

2.4 Environmental conditions

See result sheets.

3.0 RESULTS**3.0.1 Results before modifications**

PRODUCT	Test reference							
	Emissions							
Payment terminal (hand held terminal + base station + power supply) brand INGENICO BARCELONA, model I7770+ 7770BAS+ ALI0075 BTv2, s/n 8136416413 + 8141404017 + 452003	①	②	③	④	⑤	⑥	⑦	⑧
	P	P	P	P	P	P	P	P

P - PASS

F - FAIL

Detail of results in annex

3.0.2 Results after modifications

PRODUCT	Test reference
	Emissions
Hand held terminal brand INGENICO, model I7780 BTv1, s/n 8136416413	④
	P

P - PASS

F - FAIL

Detail of results in annex

3.1 Conformity to emissions standards

①.- FCC CFR47 Part 15 rules subpart C: Radiated emissions RF (30 -1000 MHz)

The measured results are below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence.

However, the results indicate that compliance is more probable than non-compliance with the specification limit.

②.- FCC CFR47 Part 15 rules subpart C: Radiated emissions RF (1-24 GHz)

The measured results are within the limits, even when extended by the uncertainty interval.

③.- FCC CFR47 Part 15 rules subpart C: Continuous conducted emissions

The measured results are within the limits, even when extended by the uncertainty interval.

④.- FCC CFR47 Part 15 rules subpart C: Section 15.247

The measured results are within the limits, even when extended by the uncertainty interval.

⑤.- FCC CFR47 Part 15 rules subpart C: Section 15.249

The measured results are within the limits, even when extended by the uncertainty interval.

⑥.- RSS-210 Section 6.6 (Transmitter AC Wireline Conducted Emissions)

The measured results are within the limits, even when extended by the uncertainty interval.

⑦.- RSS-210 Section 6.2.2 (m2): (Non-momentarily Operated Devices – 2400-2483.5MHz)

The measured results are within the limits, even when extended by the uncertainty interval.

⑧.- RSS-210 Section 6.2.2 (o): (Non-momentarily Operated Devices – 2400-2483.5MHz Spread Spectrum)

The measured results are within the limits, even when extended by the uncertainty interval.



Albert Marginet i Morales
Center Responsible
Electrics, Telecom & Electronics
LGAI Technological Center, S.A.

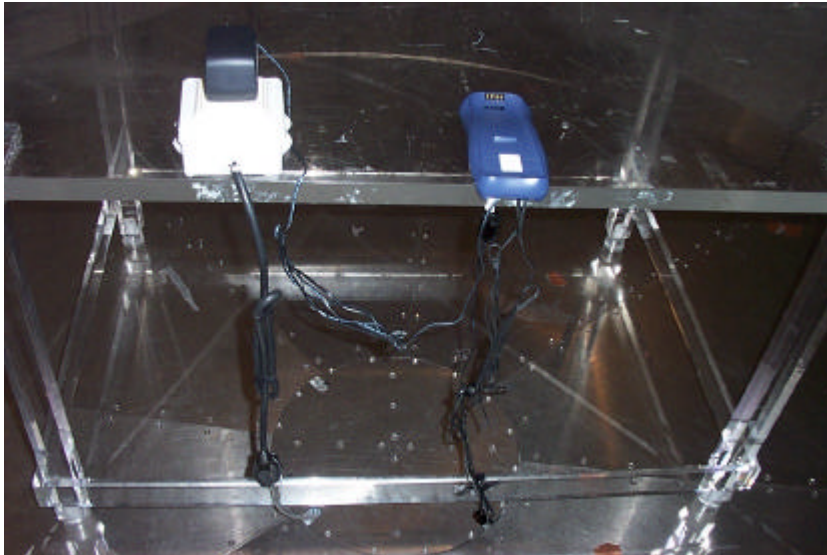


Jordi Gorchs Pahisa
Project Responsible
Electrics, Telecom & Electronics
LGAI Technological Center, S.A.

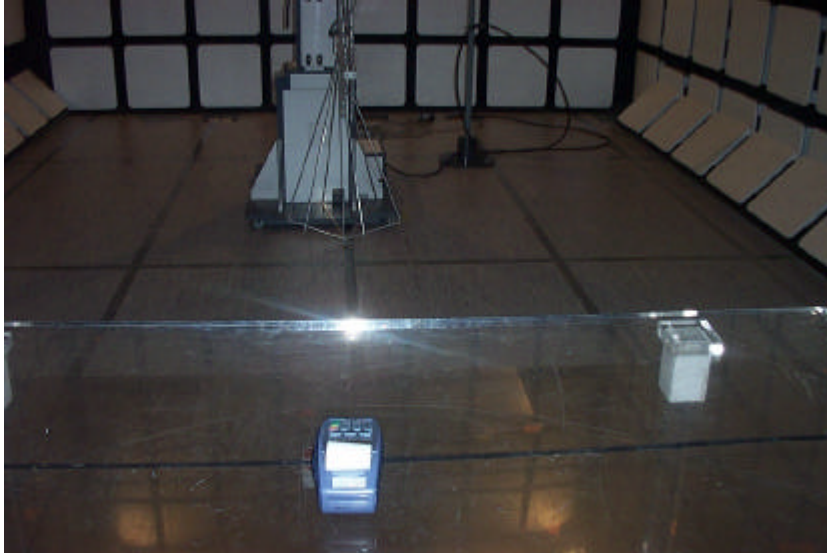
The results refer only and exclusively to the sample, product or material delivered for testing in "Received Material" section above. The equipment has been tested under conditions stipulated by standard(s) quoted in this document.



4.0 IDENTIFICATION PICTURES



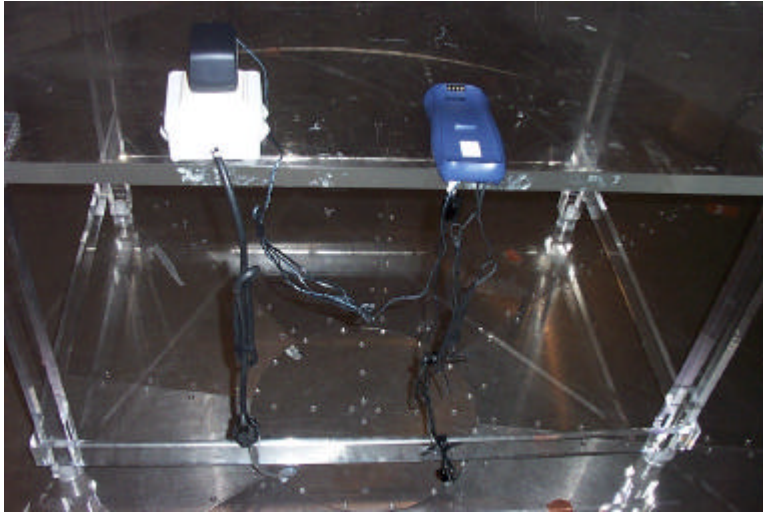
Base model 7770BAS



Terminal model I7770

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4.1 TEST CONFIGURATION



Radiated emissions



Conducted emissions

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5.0 ANNEX: DETAIL OF RESULTS

RADIATED EMISSIONS						
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal			
Procedure: PT-104029			Brand: INGENICO			
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Model: I7770+7770BAS+ALI0075 BTv2			
			Serial number: 8136416413 + 8141404017 + 452003			
			Reception date: 2005-01-17			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Test type:		Temperature: 18,5 °C	
Technician: Héctor Carreño			Conformity		Humidity: 39,30%	
supervised:					Atm. Pressure: 1012,88hPa	
Test date: 2005-01-17			DUT exercise:			
Auxiliary equipment:			MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery. Power supply AC: 120V / 60Hz Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m * 0,1m * 0,08m			
EUT	Class	Test Area	Distance	PreScan	RBW	Evaluation
On table	Class B	SAC 2	3 m	4 faces	120kHz	Individually
RESULT: PASS						
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak		Emissions Limit -2dB > QP>=Limit -4dB		Main emission source and type: DUT, NB/BB		
Comments:						

Test date: 2005-01-17

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number:

Device Under Test: BASE+TERMINAL+CARGADOR
Description:
Model: I7770+ 7770BAS+ ALI0075 BTv2
Serial Number: 8136416413 + 8141404017 + 452003

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
40.32	40.0	V	120	129	47.0	37.9	2.1	Qpk	
36.31	40.0	V	120	99	45.8	36.4	3.6	Qpk	
48.39	40.0	V	120	58	41.9	32.8	7.2	Qpk	
173.37	43.5	V	120	73	42.8	35.6	7.9	Qpk	
235.94	46.0	H	121	84	49.3	41.8	4.2	Qpk	
349.00	46.0	H	121	92	45.9	41.7	4.3	Qpk	
471.88	46.0	V	166	0	42.3	41.1	4.9	Qpk	

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: HÉCTOR CARREÑO

Test date: 2005-01-17

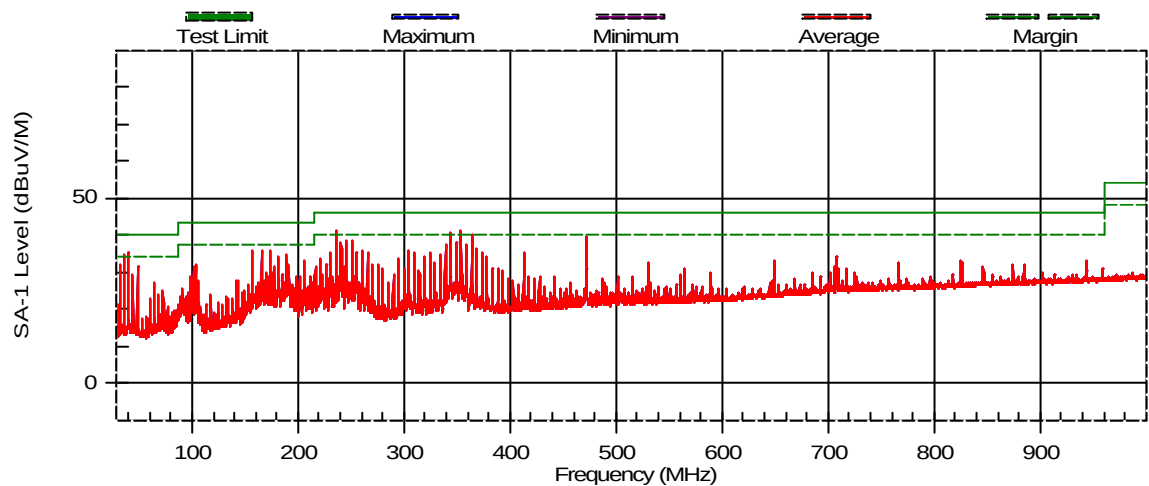
Test: Radiated Emissions
Standard: FCC part 15 subpart C
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number:

Device Under Test: BASE+TERMINAL+CARGADOR
Description:
Model: I7770+ 7770BAS+ ALI0075 BTv2
Serial Number: 8136416413 + 8141404017 + 452003

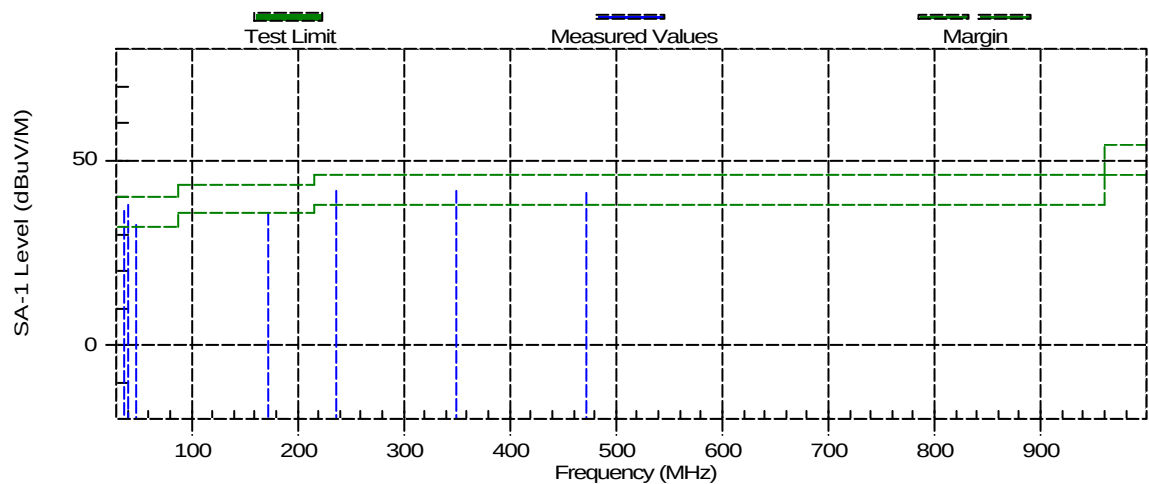
Prescan Test Results

INGENICO_I7770BAS+I7770_BT2V2_FCC_17-01-05 / 1 / 1 / 17/01/05 @ 17:34:57
(Corrected Data)



Final Test Results

INGENICO_I7770BAS+I7770_BT2V2_FCC_17-01-05 / 1 / 1 / 17/01/05 @ 18:15:31



Signature

RADIATED EMISSIONS						
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal			
			Brand: INGENICO			
Procedure: PT-104029			Model: 7770BAS+ALI0075 BTv2			
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Serial number: 8141404017 + 452003			
			Reception date: 2005-01-17			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Test type: Conformity		Temperature: 17,8 °C	
Technician: Héctor Carreño					Humidity: 34,20%	
supervised:					Atm. Pressure: 1012,96 hPa	
Test date: 2005-02-05			DUT exercise:			
Auxiliary equipment: terminal mod. I7770			MODE2: BASE tested alone. Terminal locked with base at 20 m distance. Power supply AC: 120V / 60Hz Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m * 0,02m * 0,08m			
EUT	Class	Test Area	Distance	PreScan	RBW	Evaluation
On table	Class B	SAC 2	3 m	4 faces	120kHz	Individually
RESULT: PASS						
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak		Emissions Limit > QP>=Limit -2dB		Main emission source and type: DUT, NB/BB		
Comments:						
I+D: kitagawa ferrite ref: SFC-6 is added to telephone cable						

Test date:2005-02-06

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE
Model: 7770BAS+ALI0075 BTv2
Serial Number: 8141404017+ 452003

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
40.32	40.0	V	120	225	48.2	39.2	0.8	Qpk	
32.54	40.0	V	131	195	42.6	32.8	7.2	Qpk	
186.78	43.5	V	120	239	45.0	37.2	6.3	Qpk	
206.44	43.5	V	121	213	48.0	39.5	4.0	Qpk	
211.36	43.5	V	121	214	48.0	39.7	3.8	Qpk	
363.74	46.0	H	121	309	45.6	41.9	4.2	Qpk	

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak
Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: HÉCTOR CARREÑO

Test date:2005-02-06

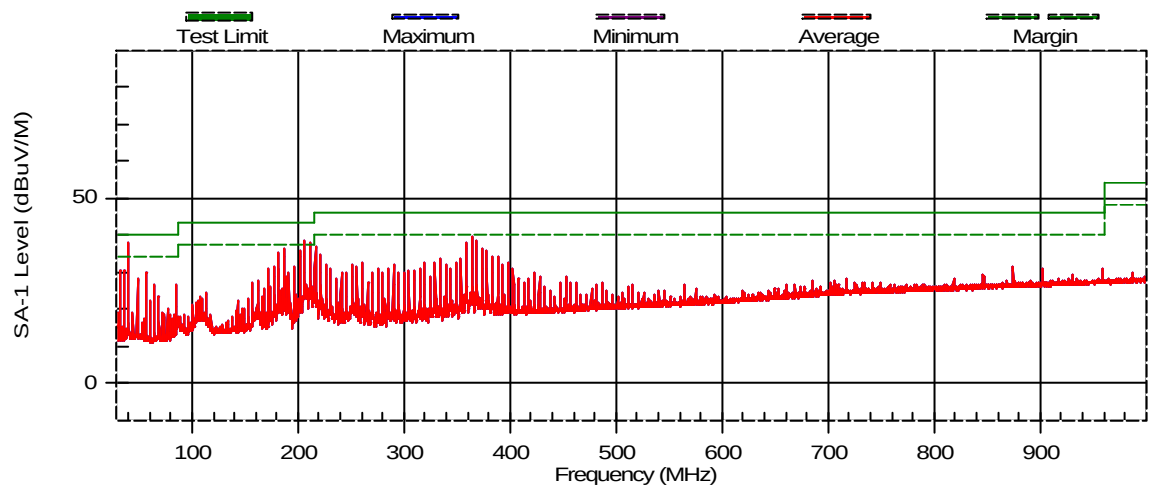
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE
Model: 7770BAS+ALI0075 BTv2
Serial Number: 8141404017+ 452003

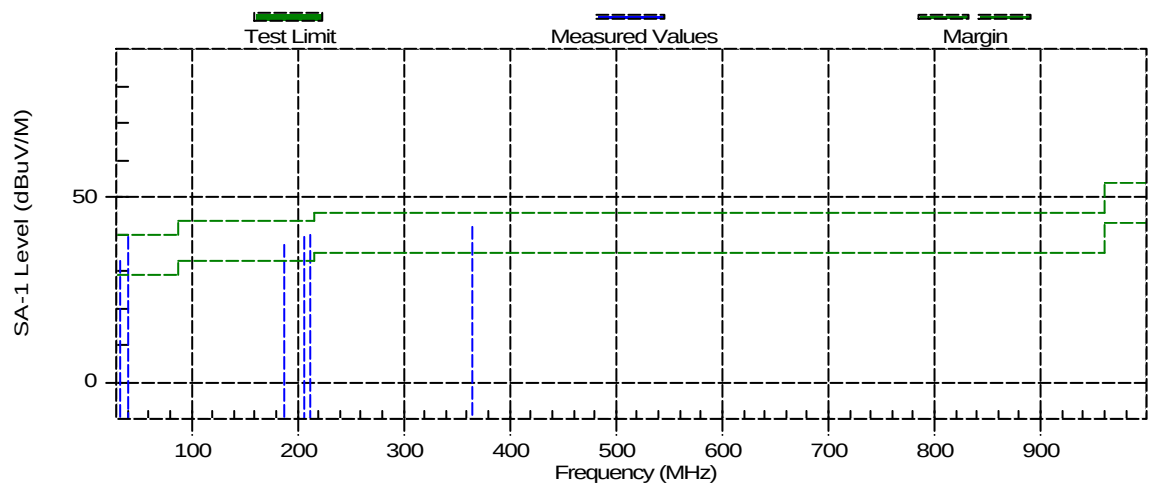
Prescan Test Results

INGENICO / TEST4 / 05-02-05 / 5/02/05 @ 17:02:50
(Corrected Data)



Final Test Results

INGENICO / TEST4 / 05-02-05 / 5/02/05 @ 17:47:08



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RADIATED EMISSIONS						
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal			
Procedure: PT-104029			Brand: INGENICO			
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Model: I7770 BTv2			
			Serial number: 8136416413			
			Reception date: 2005-01-17			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Test type: Conformity		Temperature: 22 °C	
Technician: Marc Pous					Humidity: 34,10%	
supervised:					Atm. Pressure: 1008,92hPa	
Test date: 2005-01-20			DUT exercise:			
Auxiliary equipment:			MODE3: TERMINAL tested alone. Terminal unlocked with base. Power supply DC: 6V (battery supplied) Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables:			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m * 0,08m * 0,08m			
EUT	Class	Test Area	Distance	PreScan	RBW	Evaluation
On table	Class B	SAC 2	3 m	4 faces	120kHz	Individually
RESULT: PASS						
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak		Emissions Limit -4dB > QP>=Limit -6dB		Main emission source and type: DUT, NB		
Comments:						

Test date: 2005-01-20

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7770 BTv2
Serial Number: 8136416413

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
353.84	46.0	H	121	82	39.3	35.2	10.8	Qpk	
412.48	46.0	H	228	258	39.4	36.9	9.1	Qpk	
471.94	46.0	H	206	93	42.7	41.5	4.5	Qpk	
531.07	46.0	H	178	283	37.5	37.5	8.5	Qpk	
648.35	46.0	V	142	37	28.8	30.9	15.1	Qpk	
766.94	46.0	V	127	312	31.1	35.3	10.7	Qpk	

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: MARC POUS



Test date: 2005-01-20

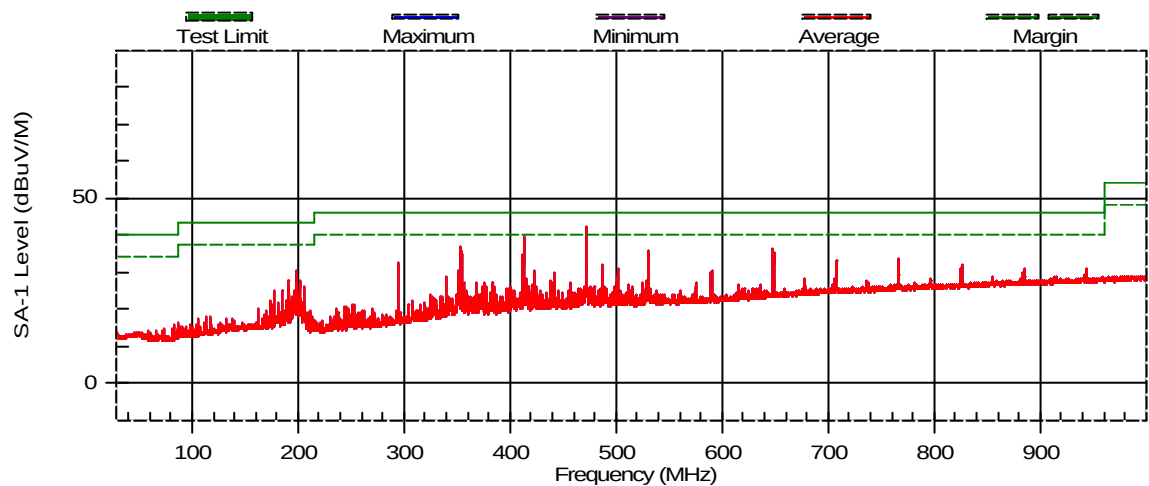
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7770 BTv2
Serial Number: 8136416413

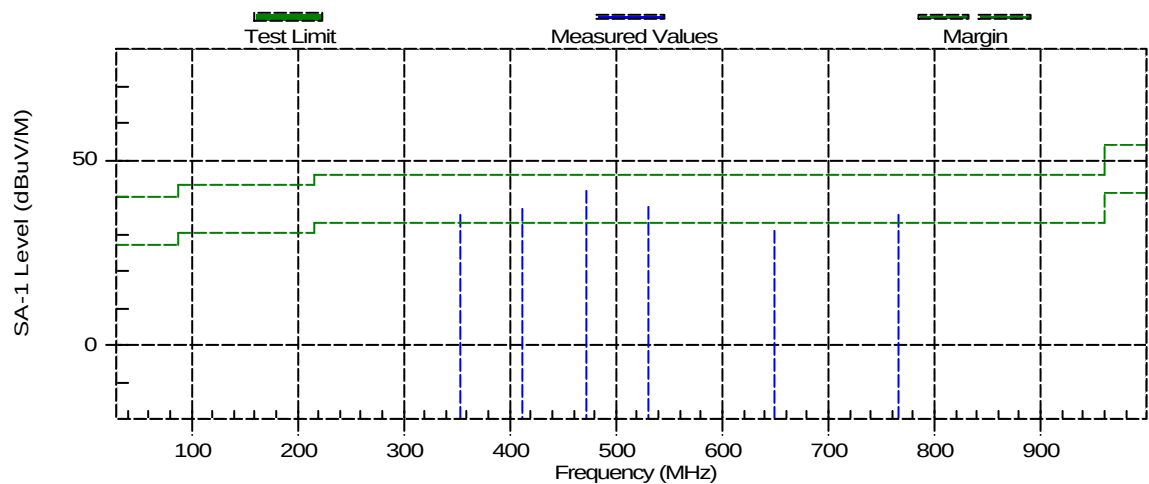
Prescan Test Results

INGENICO TEST4 TERM FCCSUBC 1GHZ / 1 / 1 / 20/01/05 @ 23:33:23
(Corrected Data)



Final Test Results

INGENICO TEST4 TERM FCCSUBC 1GHZ / 1 / 1 / 21/01/05 @ 0:08:51



Signature

RADIATED EMISSIONS					
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal		
Procedure: PT-104029			Brand: INGENICO		
Standard: Fcc CFR 47 Part 15 subpart C			Model: I7770+7770BAS+ALI0075 BTv2		
			Serial number: 8136416413 + 8141404017 + 452003		
			Reception date: 2005-01-17		
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C 210:2001 RSS			Test type:		Temperature: 19,1 °C
Technician: Marc Pous			Conformity		Humidity: 34,50%
supervised:					Atm. Pressure: 1008,92 hPa
Test date: 2005-01-20			DUT exercise:		
Auxiliary equipment:			MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging bat 120v 60Hz supplied		
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable			Frequency range: 1GHz - 24GHz		
			DUT Size: 0,22m * 0,1m * 0,08m		
EUT	Class	Test Area	Distance	PreScan	Evaluation
On table	Class B	SAC 2	3 m	4 faces	Individually
RESULT: PASS					
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak		Emissions Limit -6dB > AVG		Main emission source and type: DUT, NB	
Comments:					

Test date: 2005-01-20

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE+TERMINAL
Model: I7770+7770BAS+ALI0075 BTv2
Serial Number: 8136416413 + 8141404017 + 452003

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
2412.00	54.0	H	250	90	18.9	18.8	35.2	Avg	
2450.00	54.0	V	250	90	19.0	19.0	35.0	Avg	
2478.00	54.0	H	150	90	19.0	19.3	34.7	Avg	
4879.00	54.0	H	150	90	16.4	23.1	30.9	Avg	
4879.00	54.0	V	120	90	16.5	23.3	30.7	Avg	
2400.00	54.0	V	120	0				Avg	
4879.00	54.0	V	120	357	32.4	39.2	14.8	Avg	

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: HÉCTOR CARREÑO

Test date: 2005-01-20

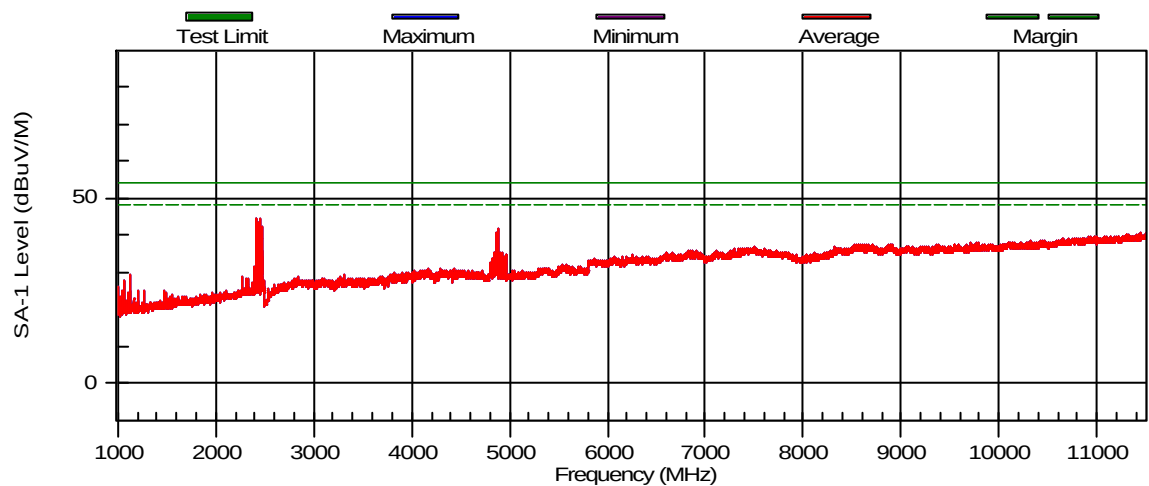
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE+TERMINAL
Model: I7770+7770BAS+ALI0075 BTv2
Serial Number: 8136416413 + 8141404017 + 452003

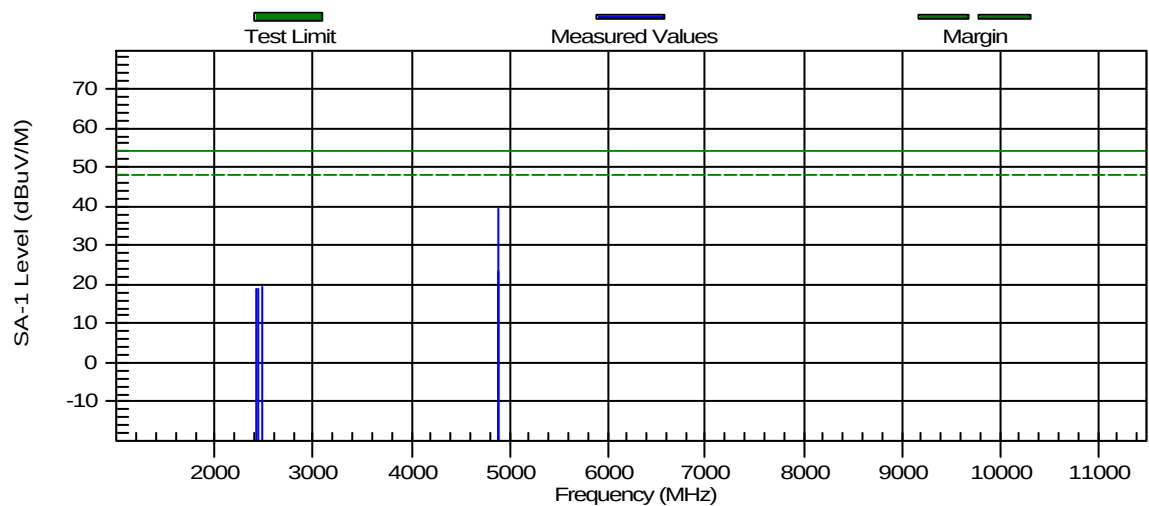
Prescan Test Results

INGENICO TEST4 FCC SUBC / 1 / 1 / 20/01/05 @ 16:46:21
(Corrected Data)



Final Test Results

INGENICO TEST4 FCC SUBC / 1 / 1 / 20/01/05 @ 20:27:01



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RADIATED EMISSIONS						
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal			
Procedure: PT-104029			Brand: INGENICO			
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Model: 7770BAS+ALI0075 BTv2			
			Serial number: 8141404017 + 452003			
			Reception date: 2005-01-17			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Test type: Conformity		Temperature: 19,5 °C	
Technician: Marc Pous					Humidity: 34,10%	
supervised:					Atm. Pressure: 1008,92hPa	
Test date: 2005-01-20			DUT exercise:			
Auxiliary equipment: terminal mod. I7770			MODE2: BASE tested alone. Terminal locked with base at 20 m distance. Power supply AC: 120V / 60Hz Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable			Frequency range: 1GHz - 24GHz			
			DUT Size: 0,22m * 0,02m * 0,08m			
EUT	Class	Test Area	Distance	PreScan	RBW	Evaluation
On table	Class B	SAC 2	3 m	4 faces	1MHz	Individually
RESULT: PASS						
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak		Emissions Limit -6dB > AVG		Main emission source and type: DUT, NB		
Comments:						

Test date: 2005-01-20

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE
Model: 7770BAS + ALI0075 BTv2
Serial Number: 8141404017 + 452003

PRODUCT EMISSIONS

"Freq. (MHz)"	"Limit (dBuV/m))"	"Pol l"	"Ht (m)"	"Azm (deg) "	"Value (dBuV)"	"Corr. Value (dBuV/m)"	"Corr. Margin (dB)"	"Detector"	"Note"
2401.00	54.0	H	120	270	27.3	27.1	26.9	Avg	""
2479.00	54.0	H	120	270	27.3	27.5	26.5	Avg	""
2480.00	54.0	V	200	90	26.9	27.2	26.8	Avg	""
7272.00	54.0	H	200	267	23.2	35.4	18.5	Avg	""
7413.00	54.0	H	121	267	24.0	36.6	17.4	Avg	""

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: MARC POUS



Test date: 2005-01-20

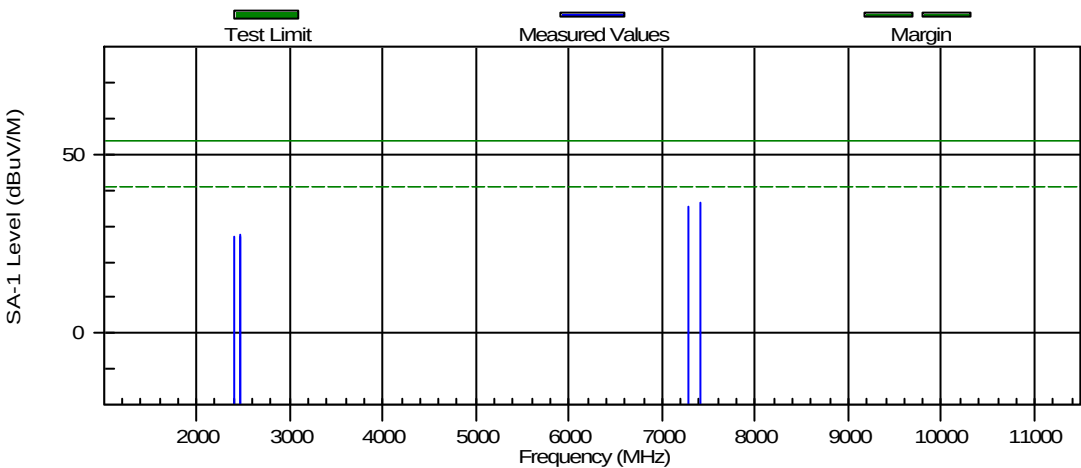
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: BASE
Model: 7770BAS + ALI0075 BTv2
Serial Number: 8141404017 + 452003

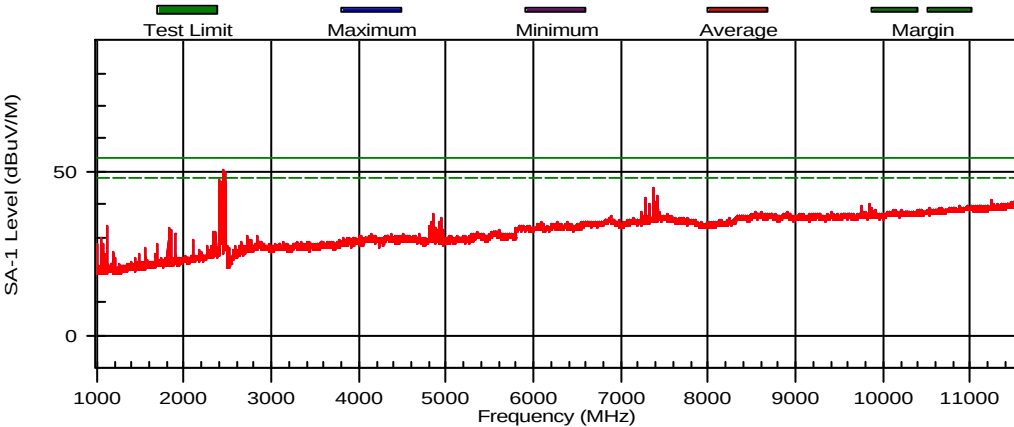
Final Test Results

INGENICO TEST 4 BASE FCC SUBC / 1 / 1 / 20/01/05 @ 22:38:05



Prescan Test Results

INGENICO TEST 4 BASE FCC SUBC / 1 / 1 / 20/01/05 @ 22:13:04
(Corrected Data)



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RADIATED EMISSIONS						
Petitioner: INGENICO BARCELONA, S.A			Device under test: Payment terminal			
Procedure: PT-104029			Brand: INGENICO			
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Model: I7770 BTv2			
			Serial number: 8136416413+ 452003			
			Reception date: 2005-01-17			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001			Test type: Conformity		Temperature: 19,5 °C	
Technician: Marc Pous					Humidity: 34,10%	
supervised:					Atm. Pressure: 1008,92 hPa	
Test date: 2005-01-20			DUT exercise:			
Auxiliary equipment:			MODE3: TERMINAL tested alone. Terminal unlocked with base. Power supply DC: 6V (battery supplied) Tested emissions are worst case for Rx and Tx mode.			
Test disposition /communication cables:			Frequency range: 1GHz - 24GHz			
			DUT Size: 0,22m * 0,08m * 0,08m			
EUT	Class	Test Area	Distance	PreScan	RBW	Evaluation
On table	Class B	SAC 2	3 m	4 faces	1MHz	Individually
RESULT: PASS						
Identification DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak			Emissions Limit -6dB > AVG		Main emission source and type: DUT, NB	
Comments:						

Test date: 2005-01-20

Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7770 BTv2
Serial Number: 8136416413

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
2402.00	54.0	V	120	90	20.2	20.0	34.0	Avg	
2425.00	54.0	H	120	0	20.7	20.6	33.4	Avg	
2471.00	54.0	H	150	180	18.6	18.8	35.2	Avg	
2475.00	54.0	V	120	90	19.4	19.6	34.4	Avg	
4831.00	54.0	V	150	0	16.1	22.7	31.3	Avg	
4945.00	54.0	H	150	180	15.1	22.0	31.9	Avg	
7401.00	54.0	V	150	0	16.3	28.9	25.0	Avg	

Corr. Value= Value + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB) // QPK: Quasi Peak Detector

COMMENTS: BB= Broad Band, NB= Narrow Band, SPU= Spurious, TEMP= Temporary, AOF= Auxiliar Off

Operating Mode: BURN-IN TEST

Technician: MARC POUS



Test date: 2005-01-20

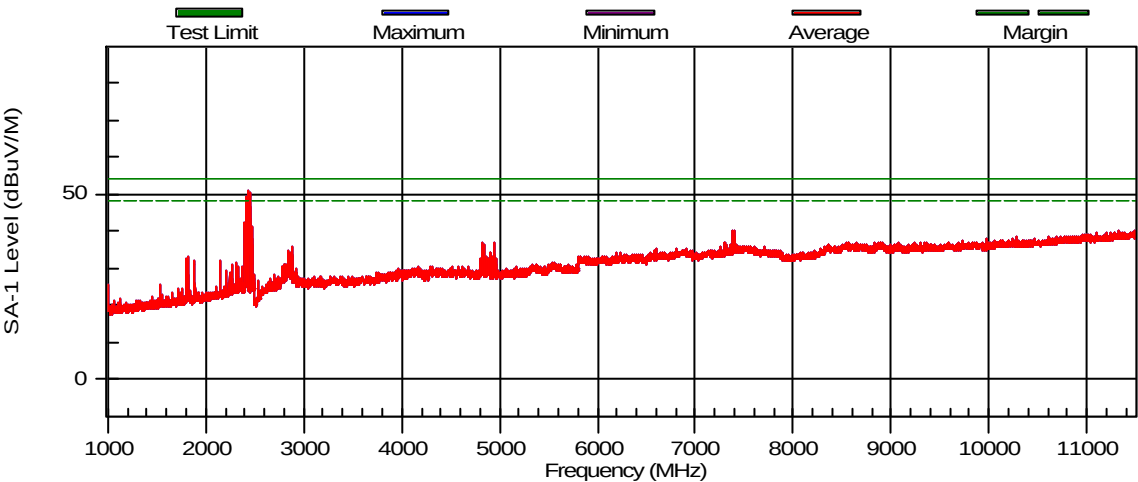
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7770 BTv2
Serial Number: 8136416413

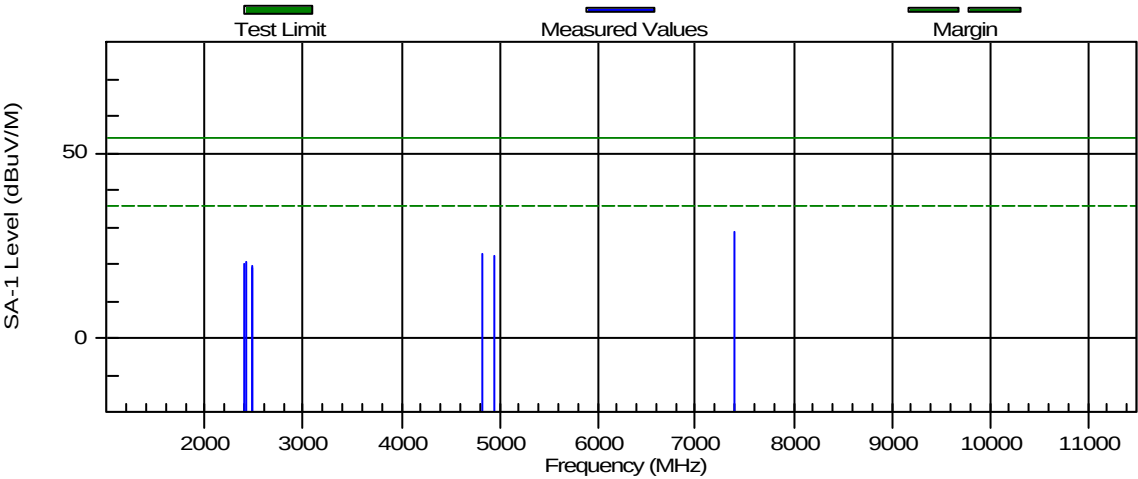
Prescan Test Results

INGENICO TEST 4 TER FCC SUBC / 1 / 1 / 20/01/05 @ 20:57:28
(Corrected Data)



Final Test Results

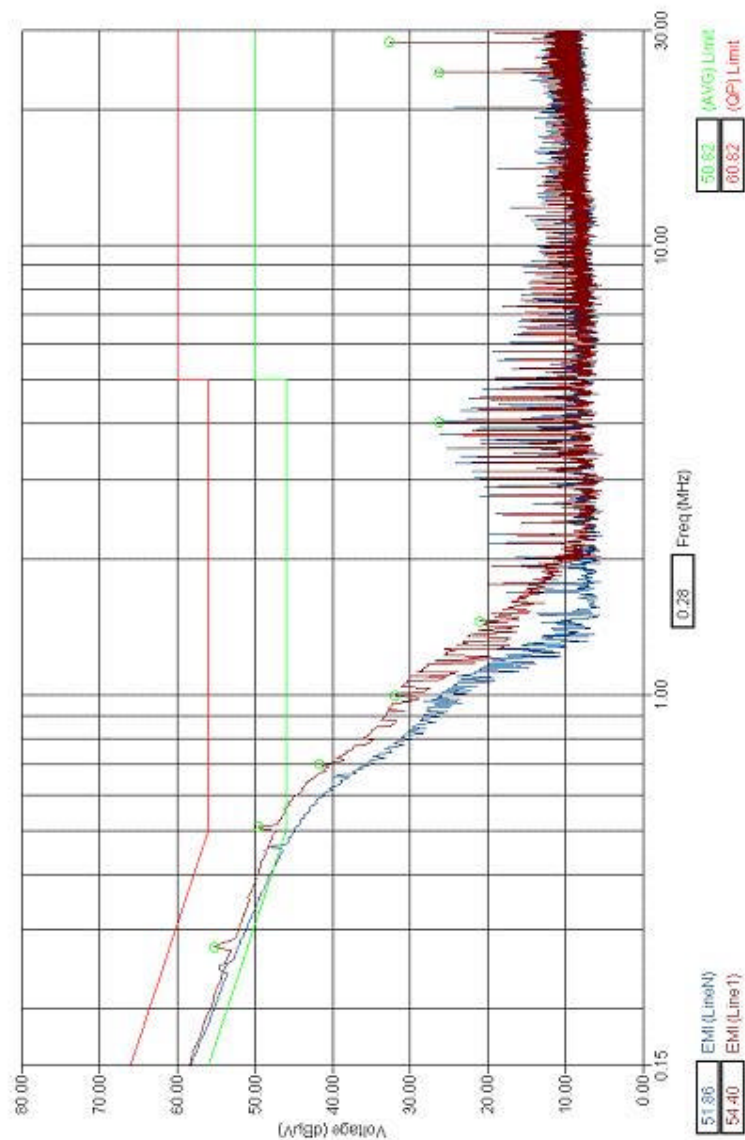
INGENICO TEST 4 TER FCC SUBC / 1 / 1 / 20/01/05 @ 21:22:33



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CONDUCTED EMISSIONS			
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal	
Procedure: PT-104028		Brand: INGENICO	
Standard: Fcc CFR 47 Part 15 subpart C		Model: I7770+7770BAS+ALI0075 BTv2	
		Serial number: 5125400002+8147445524+452003	
		Reception date: 2005-01-17	
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001		Test type:	Temperature: 19,8 °C
Technician: Héctor Carreño		Conformity	Humidity: 35,90%
Supervised:		Atm. Pressure: 1012,88 hPa	
Test date: 2005-01-17		DUT exercise:	
		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery	
Equipment:		Power supply AC: 120V 60Hz	
RS ESHS30 EMI Receiver		Tested emissions are worst case for Rx and Tx mode.	
RS ESH2-Z5 LISN		Test Area: FAC-1	
		Ground plane	
Auxiliary equipment:		Test disposition / communication cables: On Table	
CONTINUOUS CONDUCTED EMISSIONS			
Supply			
Mains supply			
T. in Power Supply (dBµV)		PASS Vqp< lim QP + Vavg< lim AVG	
Source and type of the most important emissions:			
Source: Device Under Test		Type Narrow Band	
Telecommunication Ports			
Source and type of the most important emissions			
Source:		Type	
FINAL RESULTS: PASS			
Comments:			

CONDUCTED EMISSIONS GRAPHIC: SUPPLY

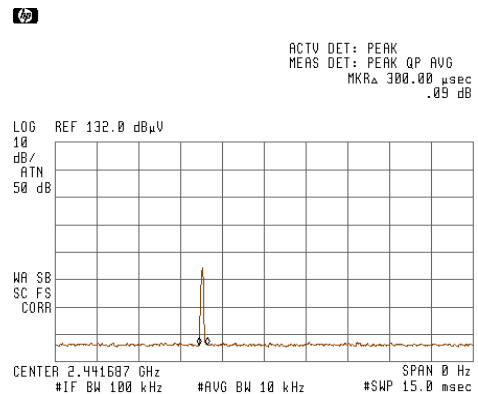
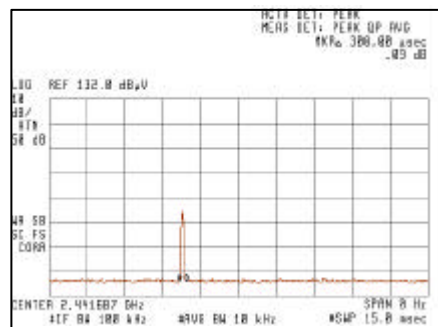


Freq [MHz]	[AVG] Limit [dBµV]	[AVG] EMI [dBµV]	[AVG] Margin AVL [dB]	[QP] Limit [dBµV]	[QP] EMI [dBµV]	[QP] Margin QPL [dB]	[PK] EMI [dBµV]
0.2750	50.97	16.99	-33.98	60.97	47.78	-13.19	58.52
0.5100	46.00	12.41	-33.59	56.00	41.60	-14.40	50.30
0.7000	46.00	6.24	-39.76	56.00	36.09	-19.91	43.53
1.0000	46.00	0.92	-45.08	56.00	25.11	-30.89	33.74
1.4650	46.00	0.64	-45.36	56.00	13.01	-42.99	23.40
4.0350	46.00	19.36	-26.64	56.00	25.95	-30.05	33.70
24.1900	50.00	24.29	-25.71	60.00	25.66	-34.34	27.43
28.2250	50.00	32.31	-17.69	60.00	33.60	-26.40	34.36

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SECTION 15.247 a) 1			
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal	
		Brand: INGENICO	
		Model: I7770+7770BAS+ALI0075 BTv2	
Standard: FCC CFR 47 Part 15 subpart C RSS-210:2001		Serial number: 8136416413 + 8141404017 + 452003	
		Reception date: 17/01/2005	
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001		Test type:	
Criteria: PASS		Conformity	
Technician: Carreño/Pous		Temperature: 22,8 °C	
Supervised:		Humidity: 15,20%	
Test date: 2005-02-16		Atm. Pressure: 995,0 hPa	
Auxiliary equipment: Receiver EMI HP model 8546A.		DUT exercise:	
		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery.	
		MODE2: BASE tested alone. Terminal locked with base at 20 m distance.	
		MODE3: TERMINAL tested alone. Terminal unlocked with base.	
		mode 2: Power supply AC 120V / 60Hz 3:Power supply DC 6V (battery supplied)	
		Tested emissions are worst case for Rx and Tx mode.	
Resolution Bandwidth: 100kHz		Test disposition / communication cables: On Table	
TEST RESULTS: PASS			
Base [MODE 2] Carries separated minimum 25kHz ☒			
Terminal [MODE 3] Carries separated minimum 25kHz ☒			

5

SECTION 15.247 a) 1 iii)			
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal	
		Brand: INGENICO	
		Model: I7770+7770BAS+ALI0075 BTv2	
Standard: FCC CFR 47 Part 15 subpart C		Serial number: 8136416413 + 8141404017 + 452003	
		Reception date: 17/01/2005	
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001		Test type:	
Criteria: PASS		Conformity	
Technician: Carreño/Pous		Temperature: 22,8 °C	
Supervised:		Humidity: 15,20%	
Test date: 2005-02-16		Atm. Pressure: 995,0 hPa	
		DUT exercise:	
		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery	
		MODE2: BASE tested alone. Terminal locked with base at 20 m distance.	
		MODE3: TERMINAL tested alone. Terminal unlocked with base	
		mode 2: Power supply AC 120V / 60Hz and mode 3: Power supply DC 6V (battery supplied)	
		Tested emissions are worst case for Rx and Tx mode.	
Auxiliary equipment: Receiver EMI HP model 8546A.		Test disposition / communication cables: On Table	
TEST RESULTS: PASS			
CRITERIA: <i>timing hopping < 0,4 seg</i> Observation time: <i>0,4 x n° channels = 0,4 x 79 = 31,6 seg</i> Base [MODE 2] Fundamental: 2,441687GHz 0,36 seg < 0,4 seg 0,3ms timing channel in 1seg 38ch 0,0003 x 38 x 31,6 = 0,36seg Terminal [MODE 3] Fundamental: 2,441687 GHz 0,35seg < 0,4 seg 0,3ms timing channel in 1seg 37ch 0,0003 x 37 x 31,6 = 0,35seg			
		 ACTV DET: PEAK MEAS DET: PEAK QP AVG MKRΔ 300.00 μsec 0.05 dB LOG REF 132.0 dBμV 10 dB/ATN 50 dB WA SB SC FS CORR CENTER 2.441687 GHz #IF BW 100 kHz #AVG BW 10 kHz #SPAN 0 Hz #SWP 15.0 msec	
		 ACTV DET: PEAK MEAS DET: PEAK QP AVG MKRΔ 300.00 μsec 0.05 dB LOG REF 132.0 dBμV 10 dB/ATN 50 dB WA SB SC FS CORR CENTER 2.441687 GHz #IF BW 100 kHz #AVG BW 10 kHz #SPAN 0 Hz #SWP 15.0 msec	

SECTION 15.249 d)			
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal	
		Brand: INGENICO	
		Model: I7770+7770BAS+ALI0075 BTv2	
Standard: FCC CFR 47 Part 15 subpart C RSS-210:2001		Serial number: 8136416413 + 8141404017 + 452003	
		Reception date: 17/01/2005	
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001		Test type: Conformity	Temperature: (note1) °C
Criteria: PASS			Humidity: (note1) %
Technician: (note1)			Atm. Pressure: (note1) hPa
Supervised:		DUT exercise:	
Test date: (note1)		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery.	
TEST AREA: SAC2		MODE2: BASE tested alone. Terminal locked with base at 20 m distance.	
Auxiliar equipment:		MODE3: TERMINAL tested alone. Terminal unlocked with base.	
		mode 2: Power supply AC 120V / 60Hz and mode 3: Power supply DC 6V (battery supplied)	
		Tested emissions are worst case for Rx and Tx mode.	
		Test disposition / communication cables: On table	
Resolution Bandwidth: 1MHz		Two serial cables terminated with impedances	
Video Bandwidth: 3Hz		Telephone cable	
TEST RESULTS: PASS			
Payment terminal (Base+Terminal) [MODE] All frequency range at -50dBc or below AVG Limit ☒ Base [MODE] All frequency range at -50dBc or below AVG Limit ☒ Terminal [MODE] All frequency range at -50dBc or below AVG Limit ☒ Note 1: temperature, humidity, atm. Pressure, test date and technician are the same as test 15.209 for payment terminal, base and terminal			

SECTION 15.249 e)															
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal													
		Brand: INGENICO													
		Model: I7770+7770BAS+ALI0075 BTv2													
Standard: FCC CFR 47 Part 15 subpart C RSS-210:2001		Serial number: 8136416413 + 8141404017 + 452003													
		Reception date: 17/01/2005													
Perf. criteria according to: FCC CFR 47 Part 15 subpart C RSS-210:2001		Test type: Conformity	Temperature: (note1) °C												
Criteria: PASS			Humidity: (note1) %												
Technician: (note1)			Atm. Pressure: (note1) hPa												
Supervised:		DUT exercise:													
Test date: (note1)		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery.													
TEST AREA: SAC 2		MODE2: BASE tested alone. Terminal locked with base at 20 m distance.													
Auxiliar equipment:		MODE3: TERMINAL tested alone. Terminal unlocked with base.													
		mode 2: Power supply AC 120V / 60Hz and mode 3: Power supply DC 6V (battery supplied)													
		Tested emissions are worst case for Rx and Tx mode.													
		Test disposition / communication cables: On table													
Resolution Bandwidth: 1MHz															
Video Bandwidth: 3Hz															
TEST RESULTS: PASS															
CRITERIA: <i>Peak EMI < Limit AVG + 20 dB</i> Payment terminal (Base+Terminal) [MODE 1] <table> <tr> <td>Fundamental: 2,41GHz</td> <td>79,8dBuV/m < 94 dBuV/m + 20 dB</td> </tr> <tr> <td>Harmonics: 4,831 GHz</td> <td>43,4dBuV/m < 54 dBuV/m + 20 dB</td> </tr> </table> Base [MODE 2] <table> <tr> <td>Fundamental: 2,471 GHz</td> <td>101,4dBuV/m < 94 dBuV/m + 20 dB</td> </tr> <tr> <td>Harmonics: 7,413 GHz</td> <td>57dBuV/m < 54 dBuV/m + 20 dB</td> </tr> </table> Terminal [MODE 3] <table> <tr> <td>Fundamental: 2,408 GHz</td> <td>106,4dBuV/m < 94 dBuV/m + 20 dB</td> </tr> <tr> <td>Harmonics: 4,831 GHz</td> <td>49,6dBuV/m < 54 dBuV/m + 20 dB</td> </tr> </table> <u>Note 1:</u> temperature, humidity, atm. Pressure, test date and technician are the same as test 15.209 for payment terminal, base and terminal				Fundamental: 2,41GHz	79,8dBuV/m < 94 dBuV/m + 20 dB	Harmonics: 4,831 GHz	43,4dBuV/m < 54 dBuV/m + 20 dB	Fundamental: 2,471 GHz	101,4dBuV/m < 94 dBuV/m + 20 dB	Harmonics: 7,413 GHz	57dBuV/m < 54 dBuV/m + 20 dB	Fundamental: 2,408 GHz	106,4dBuV/m < 94 dBuV/m + 20 dB	Harmonics: 4,831 GHz	49,6dBuV/m < 54 dBuV/m + 20 dB
Fundamental: 2,41GHz	79,8dBuV/m < 94 dBuV/m + 20 dB														
Harmonics: 4,831 GHz	43,4dBuV/m < 54 dBuV/m + 20 dB														
Fundamental: 2,471 GHz	101,4dBuV/m < 94 dBuV/m + 20 dB														
Harmonics: 7,413 GHz	57dBuV/m < 54 dBuV/m + 20 dB														
Fundamental: 2,408 GHz	106,4dBuV/m < 94 dBuV/m + 20 dB														
Harmonics: 4,831 GHz	49,6dBuV/m < 54 dBuV/m + 20 dB														