

Bellaterra : May 26th, 2005

File number : 5017528-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 5017528 from May 3rd, 2005 has been cancelled and substituted by file number 5017528-M1. Modifications performed:
Test FCC subpart C section 15.247 b) 1 done again with new software (bt agreement). Only handset I7780 BTv1 s/n 5124400020 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 Radio communication 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 before 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

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This document consists of 31 pages of which are 23 annexes.

Payment terminal (hand held terminal + base station + power supply) brand INGENICO, models I7780 + 7780BAS + ALI0085 BTv1, s/n 8103503699+5149400132+id.045 (*)

Modifications performed:

- Kitagawa ferrite ref: SFC-6 is added to the telephone cable
- Richo flat ferrite ref: RFS1-1507 is added to Bluetooth bus inside of the terminal

Test product reception (*): 2005-02-05 (terminal), 2005-04-26 (base and power supply)
Test initial date (*): 2005-02-05 (terminal), 2005-04-26 (base and power supply)
Test final date (*): 2005-04-29

(*) This modified file also contains a hand held terminal brand INGENICO, model I7780 BTv2 s/n 8102518540; test product reception: 2005-05-26, test initial date: 2005-05-26 and test final date: 2005-05-26

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)

For the remaining tests:

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 at 20 m distance when base tested alone

Terminal unlocked with base when terminal tested alone

1.2 Communication cables

Two serial cables loaded with impedances
Telephone cable
LAN cable

2.0 TESTING PROCEDURE

APPLIED STANDARDS FOR EMISSIONS TESTS FCC CFR47 Part 15 rules subpart C Test: ① <input checked="" type="checkbox"/> Radiated emissions RF (30-1000 MHz) ② <input checked="" type="checkbox"/> Radiated emissions RF (1-24 GHz) ③ <input checked="" type="checkbox"/> Continuous interference (150 kHz-30 MHz)	Class <input type="checkbox"/> A <input checked="" type="checkbox"/> B
APPLIED STANDARDS FOR EMISSIONS TESTS FCC CFR47 Part 15 rules subpart C Test: ④ <input checked="" type="checkbox"/> Section 15.247 (operation within the bands 2400-2483,5 MHz) ⑤ <input checked="" type="checkbox"/> Section 15.249 (operation within the bands 2400-2483,5 MHz)	

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Este documento consta de 30 páginas de las cuales son anexos.

<p>APPLIED STANDARDS FOR EMISSIONS TESTS <u>Radio Standards Specification (RSS-210):2001</u> Test: ⑥ <input checked="" type="checkbox"/> Section 6.6 (Transmitter AC Wireline Conducted Emissions) ⑦ <input checked="" type="checkbox"/> Section 6.2.2 (m2): (Non-momentarily Operated Devices – 2400-2483.5MHz) ⑧ <input checked="" type="checkbox"/> Section 6.2.2 (o): (Non-momentarily Operated Devices – 2400-2483.5MHz Spread Spectrum)</p>

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: ± 4,3 dB.

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

3.0.2 Results before modifications

PRODUCT	Test reference							
	Emissions							
Payment terminal (hand held terminal + base station + power supply) brand INGENICO, models I7780 + 7780BAS + ALI0085 BTv1, s/n 8103503699+5149400132+id.045 (*)	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 5124400020	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 station model 7780BAS



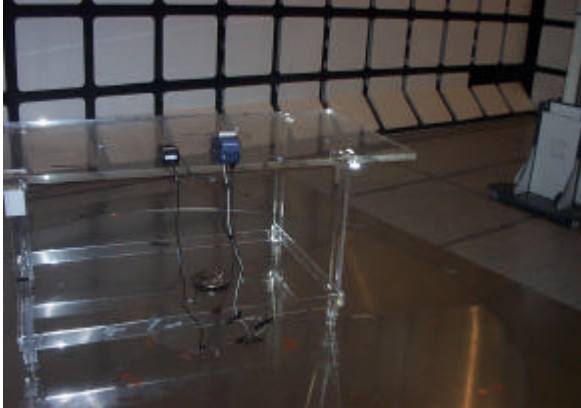
Hand held Terminal, model I7780



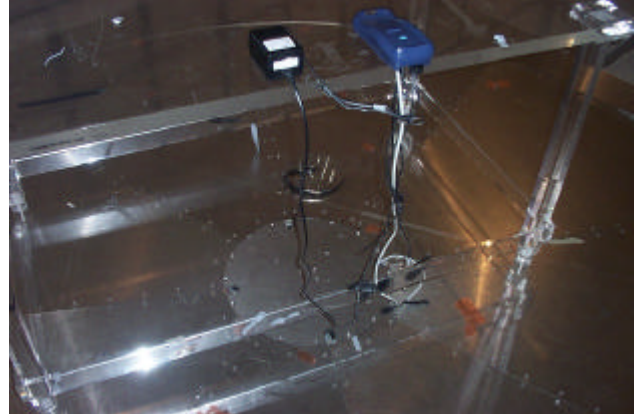
Kitagawa ferrites ref: SFC-6

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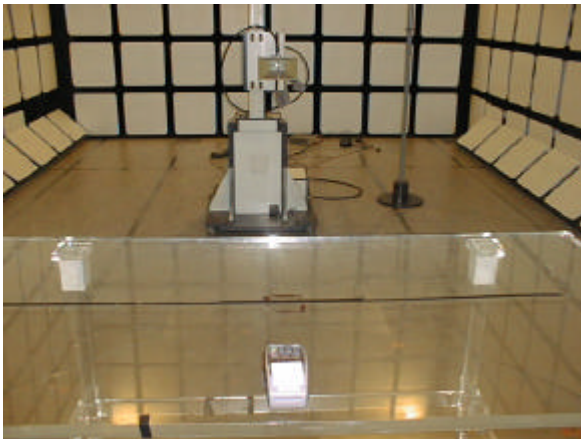
4.1 TEST CONFIGURATION



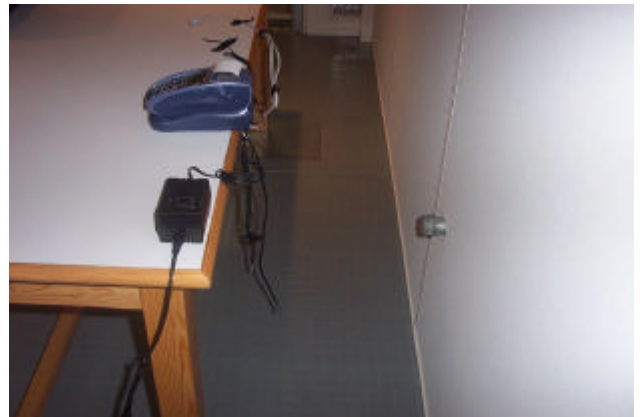
Radiated emissions (base and terminal)



Radiated emissions (base)



Radiated emissions (terminal)



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			Model: I7780+7780BAS+ALI0085 BTv1			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210			Serial number: 8103503699+5149400132+id.45			
Technician: Marc Pous			Reception date: 05-02-2005 (terminal), 26-04-2005(base and power supply)			
supervised:			Test type:		Temperature: 23,4 °C	
Test date: 2005-04-27			Conformity		Humidity: 35,60%	
Auxiliary equipment:			Atm. Pressure: 1004,00 hPa			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable LAN cable			DUT exercise: 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.			
			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m x 0,1m x 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	
Comments:						

Test date: 2005-04-27

Test: Radiated Emissions
 Standard: FCC CFR 47 PART15 SUBPART C RSS-210
 Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A.
 Manufacturer: INGENICO BARCELONA, S.A.
 Job Number: 1

Device Under Test: PAYMENT TERMINAL
 Description: TERMINAL+BASE
 Model: I7780+7780BAS + ALI0085 BTv1
 Serial Number: 8103503699+5149400132+id.45

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
32.09	40.0	V	120	230	48.6	38.8	1.2	Qpk	
34.27	40.0	V	120	265	48.8	39.2	0.8	Qpk	
76.28	40.0	V	120	191	46.4	36.0	4.0	Qpk	
176.95	40.0	V	122	287	43.1	35.8	4.2	Qpk	
235.97	47.0	H	128	299	52.4	44.9	2.1	Qpk	
353.91	47.0	H	121	81	48.2	44.2	2.8	Qpk	
471.90	47.0	H	172	305	41.5	40.3	6.7	Qpk	
766.78	47.0	V	129	284	38.0	42.2	4.8	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: Terminal and Base tested together. Automatic test mode: Burn-in test and charging battery

Technician: Marc Pous

Test date: 2005-04-27

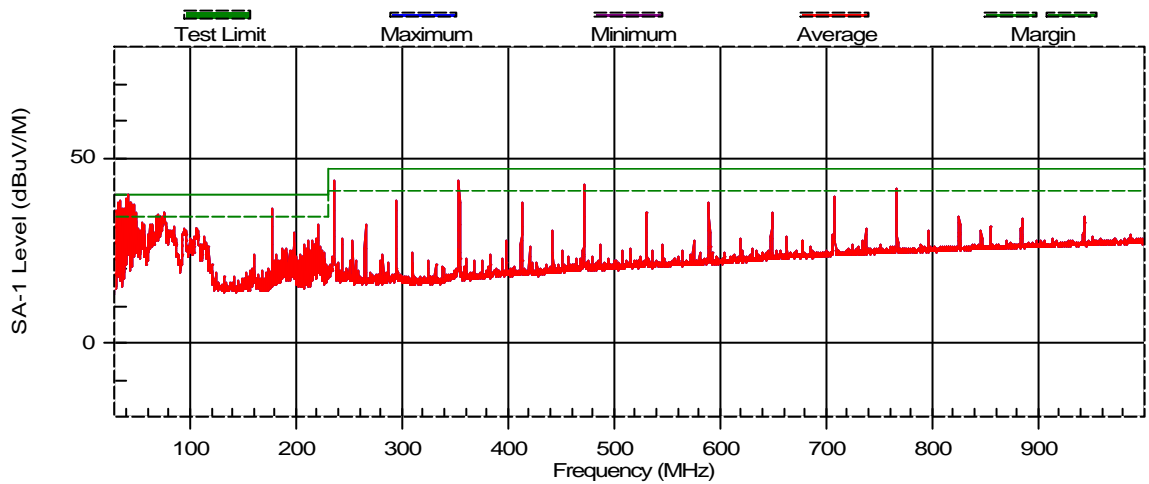
Test: Radiated Emissions
Standard: FCC CFR 47 PART15 SUBPART C RSS-210
Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A.
Manufacturer: INGENICO BARCELONA, S.A.
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL + BASE
Model: I7780 + 7780BAS+ ALI0085 BTv1
Serial Number: 8103503699+5149400132+id.45

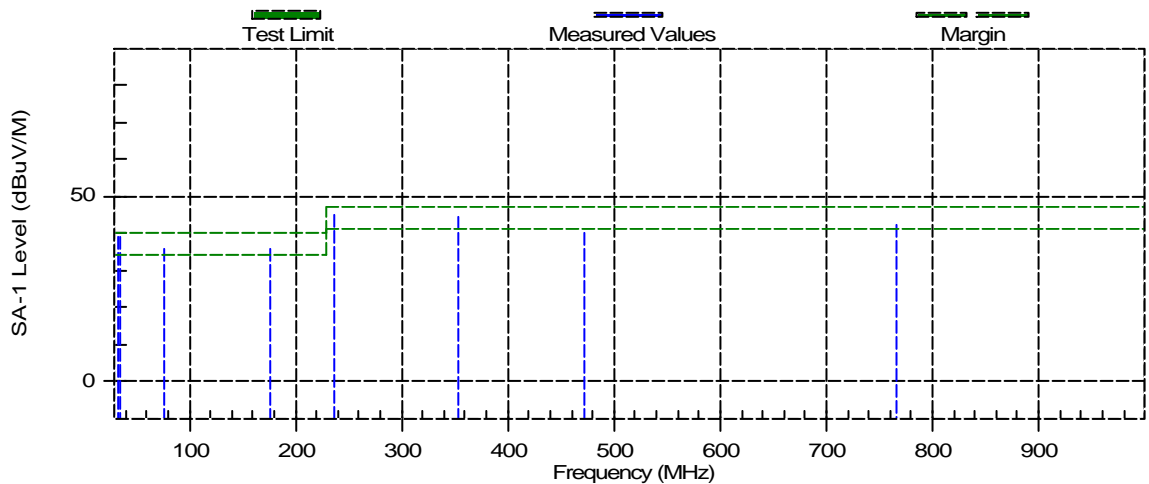
Prescan Test Results

INGENICO / TEST10_B / 27-04-05 / 27/4/05 @ 14.04.16
(Corrected Data)



Final Test Results

INGENICO / TEST10_B / 27-04-05 / 27/4/05 @ 14.48.55



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			Model: 7780BAS+ALI0085 BTv1			
			Serial number: 5149400132+id.45			
			Reception date: 05-02-2005 (terminal), 26-04-2005(base and power supply)			
Perf. Criteria according to: Fcc.CFR 47 Part 15 subpart C 210			Test type:		Temperature: 22,7 °C	
Technician: Héctor Carreño			Conformity		Humidity: 36,20%	
supervised:					Atm. Pressure: 1004,00 hPa	
Test date: 2005-04-27			DUT exercise:			
Auxiliary equipment: terminal mod. I7780			MODE2: BASE tested alone.Terminal locked with base and separated 20 m. 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 LAN cable			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m x 0,02m x 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 -6dB > QP		Main emission source and type: DUT, NB		
Comments:						
I+D: Kitagawa ferrite ref. SFC-6 is added to the telephone cable						

Test date: 2005-04-27

Test: Radiated Emissions
 Standard: FCC CFR 47 part 15 subpart C || RSS 210
 Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
 Manufacturer: INGENICO BARCELONA, S.A
 Job Number:

Device Under Test: PAYMENT TERMINAL
 Description: BASE + BATTERY CHARGER
 Model: 7780BAS+ALI0085 BTv1
 Serial Number: 5149400132+id.45

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
75.15	40.0	V	121	272	42.5	32.2	7.8	Qpk	
176.96	40.0	V	122	269	40.2	32.9	7.1	Qpk	
412.92	47.0	V	126	245	41.7	39.2	7.8	Qpk	
471.94	47.0	H	171	60	37.6	36.5	10.5	Qpk	
707.81	47.0	H	126	146	33.5	36.9	10.1	Qpk	
766.90	47.0	H	120	87	34.8	38.9	8.1	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: AUTOMATIC TEST MODE: burn-in test

Technician: Héctor Carreño

Test date: 2005-04-27

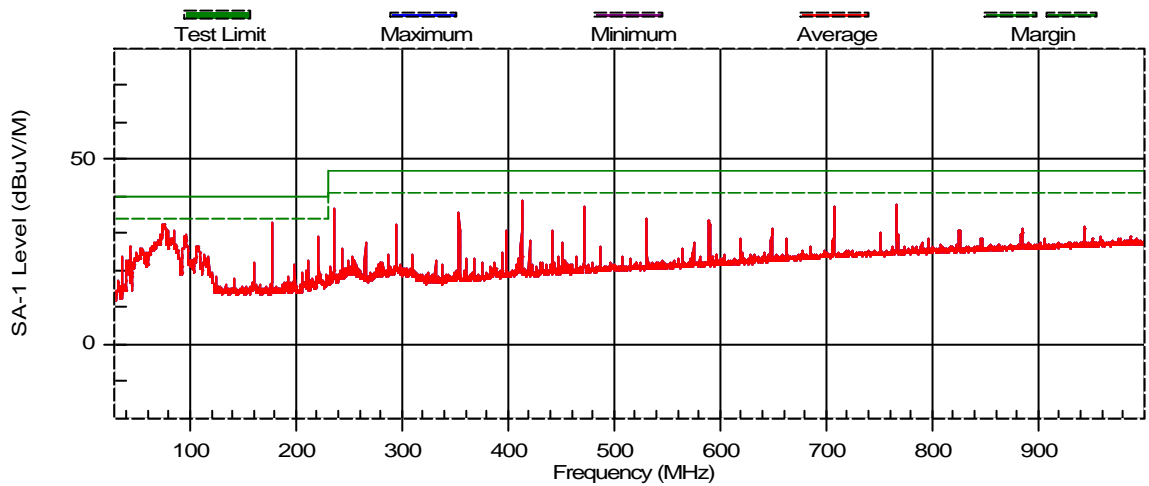
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C || RSS 210
Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
Manufacturer: INGENICO BARCELONA, S.A
Job Number:

Device Under Test: PAYMENT TERMINAL
Description: BASE + BATTERY CHARGER
Model: 7780BAS+ALI0085 BTv1
Serial Number: 5149400132+id.45

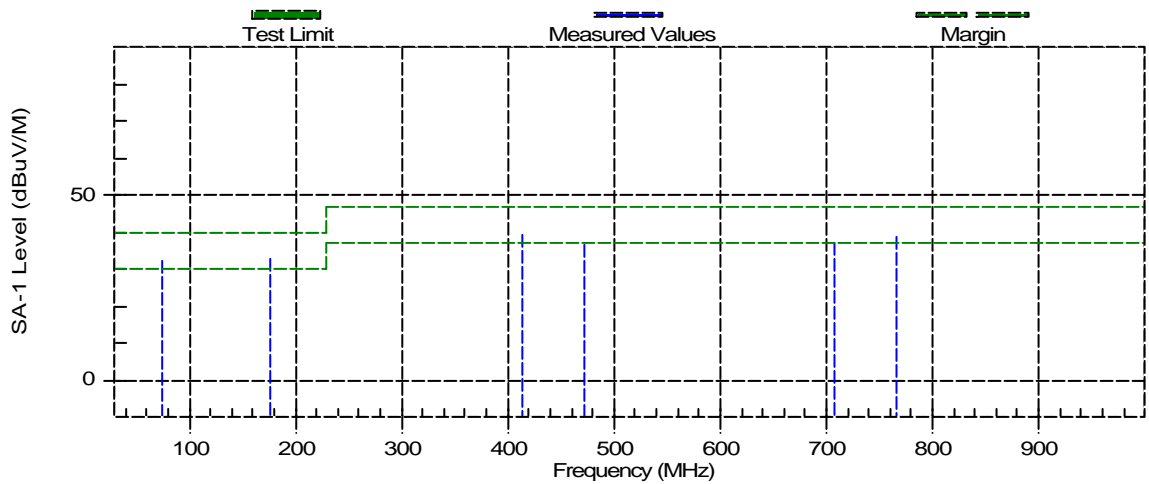
Prescan Test Results

INGENICO / TEST10 / 27-04-05 / 27/4/05 @ 13.12.29
(Corrected Data)



Final Test Results

INGENICO / TEST10 / 27-04-05 / 27/4/05 @ 13.45.35



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			Model: I7780 BTv1			
Fcc CFR 47 Part 15 subpart C RSS 210			Serial number: 8103503699			
Perf. Criteria according to:			Test type:		Temperature: 16,0 °C	
Technician: Héctor Carreño			Conformity		Humidity: 35,20%	
supervised:					Atm. Pressure: 1012,96 hPa	
Test date: 2005-02-05			DUT exercise:			
Auxiliary equipment:			MODE3: TERMINAL tested alone. Terminal unlocked with base. 6V DC battery supplied Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables:			Frequency range: 30MHz - 1GHz			
			DUT Size: 0,22m x 0,08m x 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		
Comments:						
R+D: Richo flat ferrite ref: RFS1-1507 is added to Bluetooth bus inside of the terminal						

Test date: 2005-02-05

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: TERMINAL
 Model: I7780 BTv2
 Serial Number: 8103503699

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
294.96	47.0	H	133	73	43.9	38.3	8.7	Qpk	
353.90	47.0	H	120	72	47.8	43.8	3.2	Qpk	
412.94	47.0	H	120	77	39.9	37.4	9.6	Qpk	
648.82	47.0	H	128	275	37.6	39.7	7.3	Qpk	
707.83	47.0	H	120	278	40.4	43.8	3.2	Qpk	
766.80	47.0	H	121	272	37.6	41.8	5.2	Qpk	
825.84	47.0	H	121	85	35.9	40.8	6.2	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: 2005-02-05

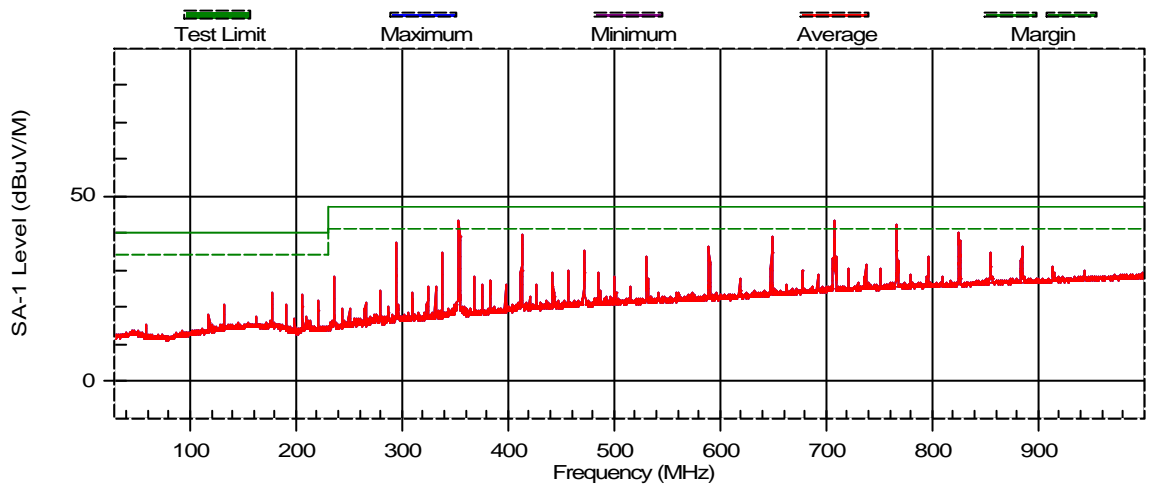
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7780 BTv2
Serial Number: 8103503699

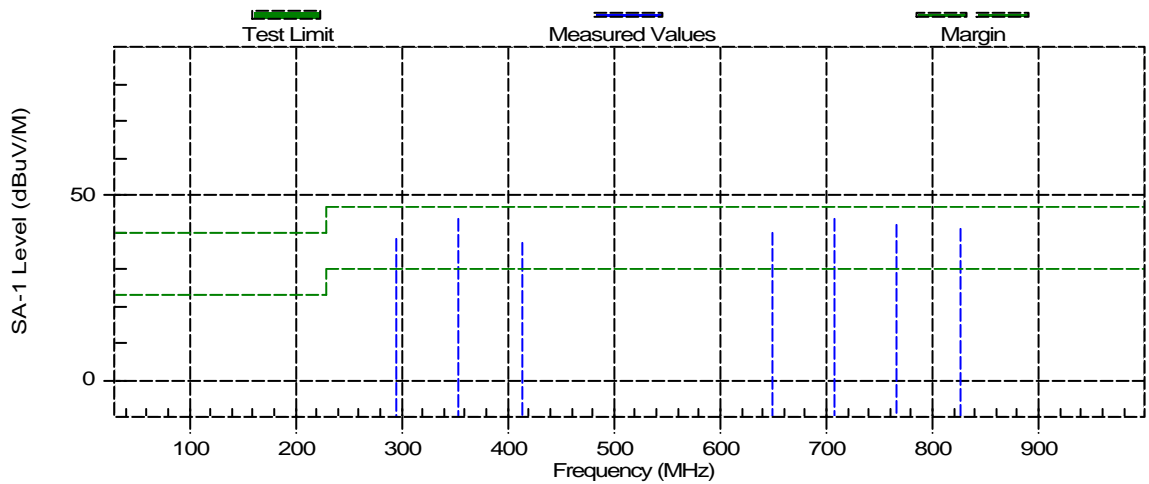
Prescan Test Results

INGENICO / TEST6 / 05-02-05 / 5/02/05 @ 22:59:47
(Corrected Data)



Final Test Results

INGENICO / TEST6 / 05-02-05 / 5/02/05 @ 23:47:22



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			Model: I7780+7780BAS+ALI0085 BTv1			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210			Serial number: 8103503699+5149400132+id.45			
Technician: Héctor Carreño			Reception date: 05-02-2005 (terminal), 26-04-2005(base and power supply)			
supervised:			Test type:		Temperature: 23,5 °C	
Test date: 2005-04-29			Conformity		Humidity: 31,80%	
Auxiliary equipment:			DUT exercise:			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable LAN cable			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.			
			Frequency range: 1GHz - 24GHz			
			DUT Size: 0,22m x 0,1m x 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: 2005-04-29

Test: Radiated Emissions
 Standard: FCC CFR 47 part 15 subpart C || RSS 210
 Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
 Manufacturer: INGENICO BARCELONA, S.A
 Job Number:

Device Under Test: PAYMENT TERMINAL
 Description: TERMINAL + BASE + BATTERY CHARGER
 Model: I7780+7780BAS+ALI0085 BTv1
 Serial Number: 8103503699+5149400132+id.45

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
1128.00	54.0	V	121	18	7.9	0.4	53.6	Avg	
2424.00	54.0	V	125	45	23.2	23.1	30.9	Avg	
2474.00	54.0	V	193	284	19.6	19.8	34.2	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: AUTOMATIC TEST MODE: burn-in test, and charging battery

Technician: Héctor Carreño

Test date: 2005-04-29

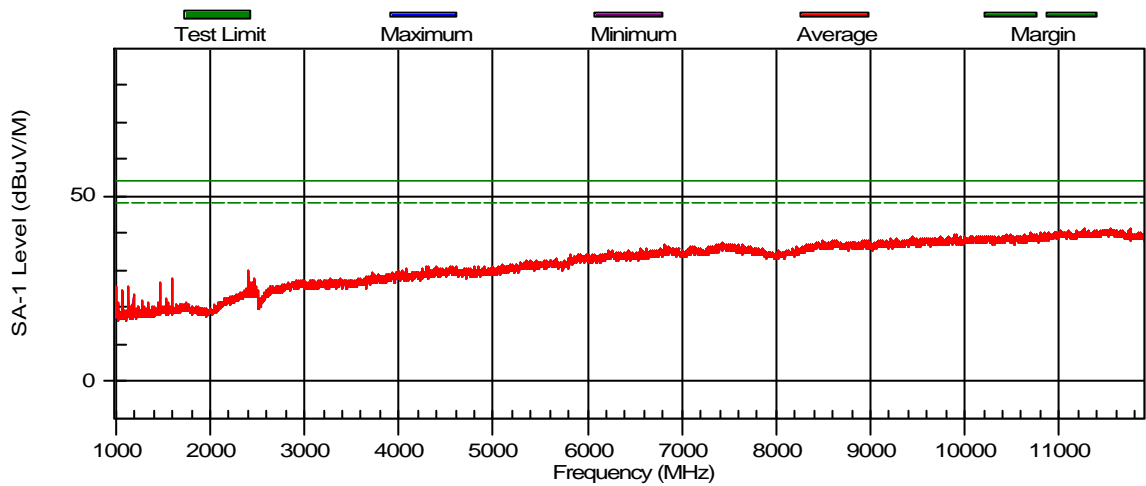
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C || RSS 210
Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
Manufacturer: INGENICO BARCELONA, S.A
Job Number:

Device Under Test: PAYMENT TERMINAL
Description: TERMINAL + BASE + BATTERY CHARGER
Model: I7780+7780BAS+ALI0085 BTv1
Serial Number: 8103503699+5149400132+id.45

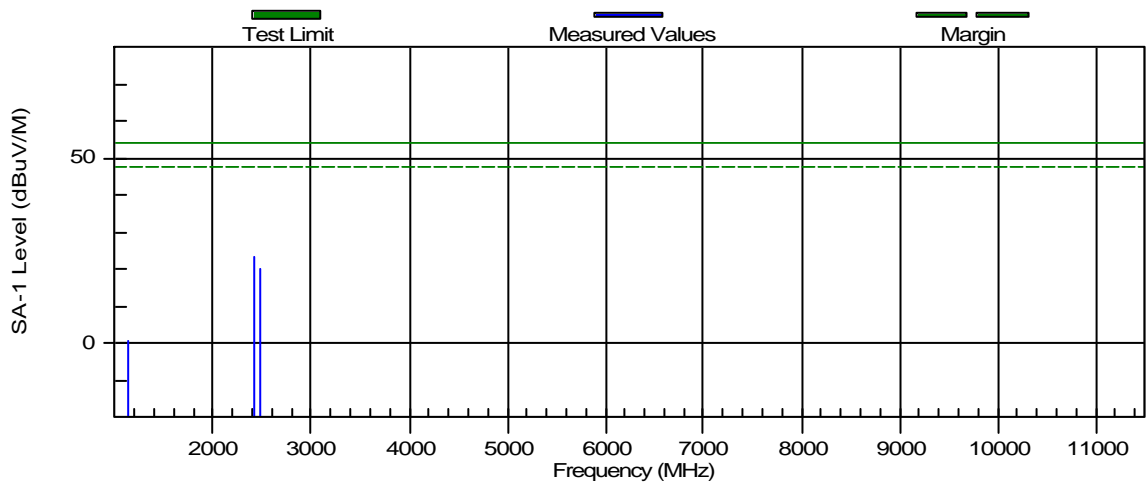
Prescan Test Results

INGENICO / TEST10_D / 29-04-05 / 29/4/05 @ 8.22.08
(Corrected Data)



Final Test Results

INGENICO / TEST10_D / 29-04-05 / 29/4/05 @ 8.37.39



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			Model: 7780BAS+ALI0085 BTv1			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210			Serial number: 5149400132+id.45			
Technician: Héctor Carreño			Reception date: 05-02-2005 (terminal), 26-04-2005(base and power supply)			
supervised:			Test type: Conformity		Temperature: 23,5 °C	
Test date: 2005-04-29			Humidity: 31,80%			
Auxiliary equipment: terminal mod. I7780			Atm. Pressure: 1004,81 hPa			
Test disposition/communication cables: Two serial cables terminated with impedances Telephone cable LAN cable			DUT exercise: MODE2: BASE tested alone.Terminal locked with base and separated 20 m. Power Supply AC: 120V / 60Hz Tested emissions are worst case for Rx and Tx mode.			
			Frequency range: 1GHz - 24GHz			
			DUT Size: 0,22m x 0,02m x 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: 2005-04-27

Test: Radiated Emissions
 Standard: FCC CFR 47 part 15 subpart C || RSS 210
 Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
 Manufacturer: INGENICO BARCELONA, S.A
 Job Number:

Device Under Test: PAYMENT TERMINAL
 Description: BASE + BATTERY CHARGER
 Model: 7780BAS+ALI0085 BTv1
 Serial Number: 5149400132+id.45

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
2426.00	54.0	V	168	291	18.3	18.2	35.7	Avg	
2435.00	54.0	V	132	310	21.3	21.3	32.7	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: AUTOMATIC TEST MODE: burn-in test

Technician: Héctor Carreño

Test date: 2005-04-27

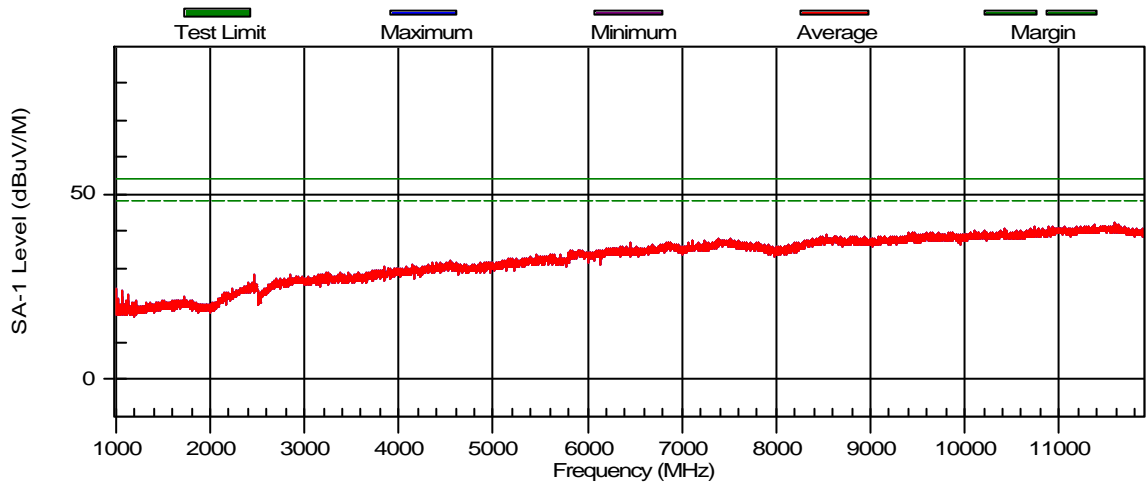
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C || RSS 210
Test Area: SAC 2

Petitioner: INGENICO BARCELONA, S.A
Manufacturer: INGENICO BARCELONA, S.A
Job Number:

Device Under Test: PAYMENT TERMINAL
Description: BASE + BATTERY CHARGER
Model: 7780BAS+ALI0085 BTv1
Serial Number: 5149400132+id.45

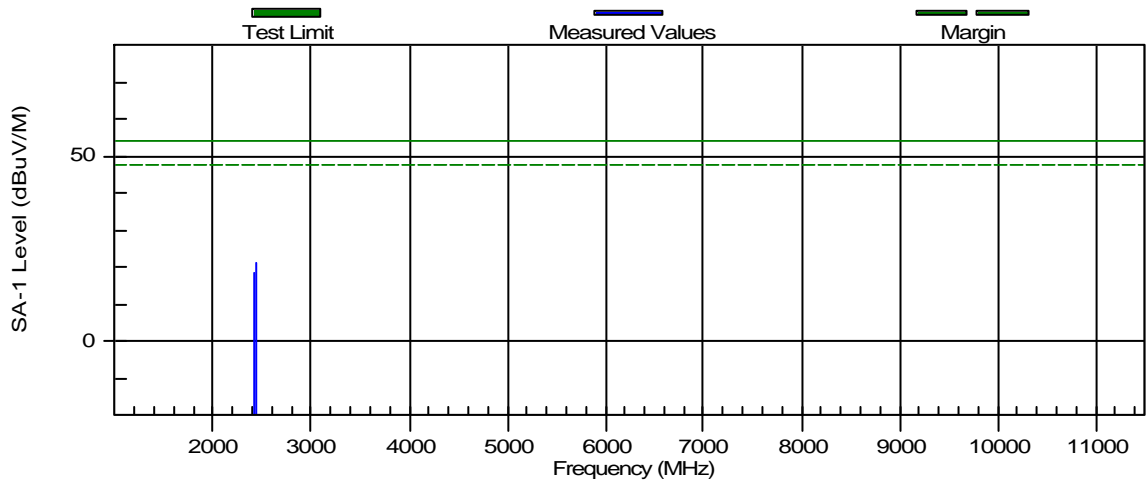
Prescan Test Results

INGENICO / TEST10_C / 29-04-05 / 29/4/05 @ 7.34.43
(Corrected Data)



Final Test Results

INGENICO / TEST10_C / 29-04-05 / 29/4/05 @ 7.54.35



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			Model: I7780 BTv1			
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210			Serial number: 8103503699		Reception date: 05-02-2005 (terminal), 26-04-2005(base and power supply)	
Technician: Héctor Carreño			Test type: Conformity		Temperature: 18,8 °C	
supervised:					Humidity: 25,00%	
Test date: 2005-02-24			DUT exercise:			
Auxiliary equipment:			MODE3: TERMINAL tested alone. Terminal unlocked with base. 6Vdc battery supplied Tested emissions are worst case for Rx and Tx mode.			
Test disposition/communication cables:			Frequency range: 1GHz - 24GHz			
			DUT Size: 0,22m x 0,08m x 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: 2005-02-24

Test: Radiated Emissions
 Standard: FCC CFR 47 part 15 subpart C
 Test Area: SAC2

Petitioner: INGENICO BARCELONA, S.A.
 Manufacturer: INGENICO BARCELONA, S.A.
 Job Number: 1

Device Under Test: PAYMENT TERMINAL
 Description: TERMINAL
 Model: I7780 BTv2
 Serial Number: 8103503699

PRODUCT EMISSIONS

Freq. (MHz)	Limit (dBuV/m)	Pol	Ht (cm)	Azm (deg)	Value (dBuV/m)	Corr. Value (dBuV/m)	Corr. Margin (dB)	Detector	Note
2418.00	54.0	H	200	0	27.3	27.2	26.8	Avg	
2455.08	54.0	V	120	359	44.2	44.2	9.8	Avg	
2469.00	54.0	V	200	270	26.8	27.0	27.0	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: HÉCTOR CARREÑO

Test date: 2005-02-24

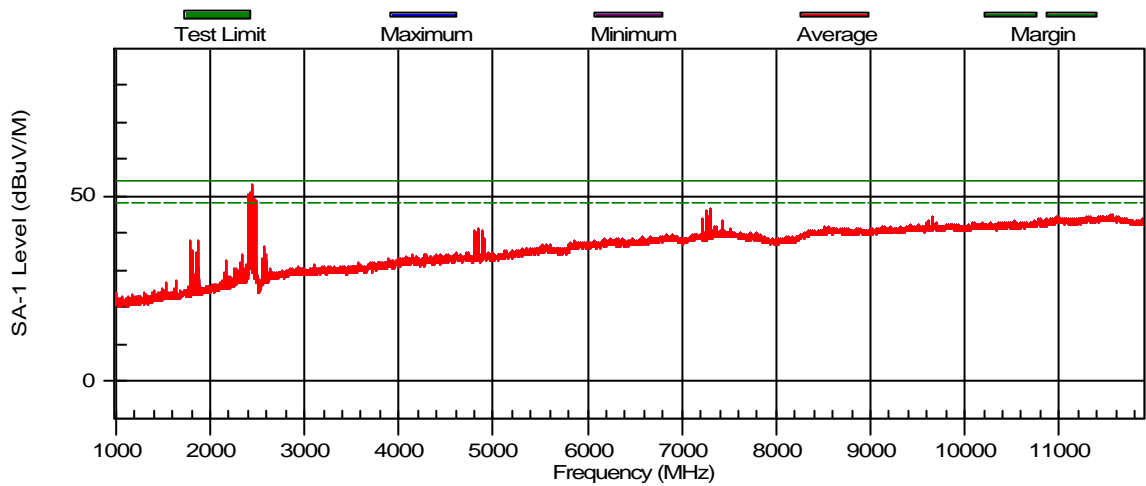
Test: Radiated Emissions
Standard: FCC CFR 47 part 15 subpart C
Test Area: SAC2

Petitioner: INGENICO BARCELONA, S.A.
Manufacturer: INGENICO BARCELONA, S.A.
Job Number: 1

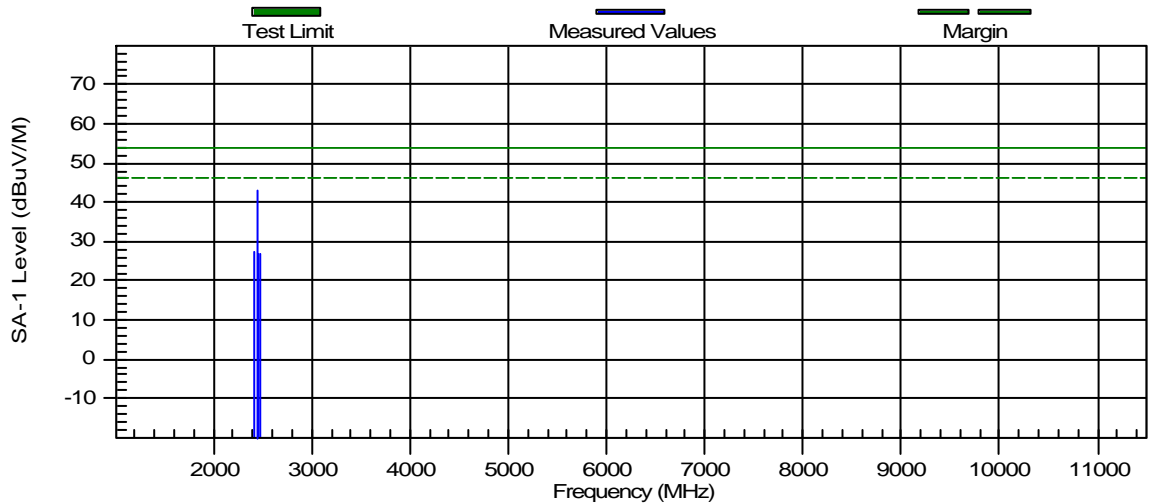
Device Under Test: PAYMENT TERMINAL
Description: TERMINAL
Model: I7780 BTv2
Serial Number: 8103503699

Prescan Test Results

INGENICO / TEST6 / 24-02-05 / 24/02/05 @ 11:23:28
(Corrected Data)



Final Test Results

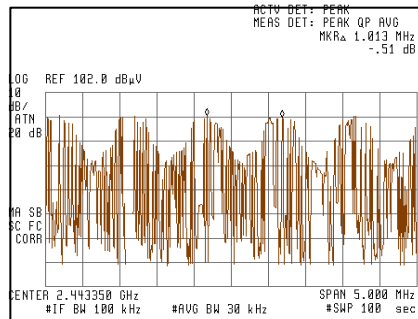


CONDUCTED EMISSIONS	
Petitioner: INGENICO BARCELONA, S.A	Device under test: Payment terminal
Procedure: PT-104028	Brand: INGENICO
Standard: Fcc CFR 47 Part 15 subpart C RSS 210	Model: I7780+7780BAS+ALI0085 BTv1
	Serial number: 8103503699+5149400132+id.45
	Reception date: 05-02-2005 (terminal), 26-04-2005 (base and power supply)
Perf. Criteria according to: FCC CFR 47 Part 15 subpart C RSS 210	Test type: Conformity
Technician: Héctor Carreño	Temperature: 21,2 °C
Supervised:	Humidity: 34,00%
Test date: 2005-04-29	Atm. Pressure: 1004,81 hPa
Equipment: RS ESHS30 EMI Receiver RS ESH2-Z5 LISN	DUT exercise: 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.
Auxiliary equipment:	Test Area: FAC-1 Ground plane
Resolution Bandwidth: 10kHz	Test disposition / communication cables: On Table
Measurement time: 20s	Two serial cables terminated with impedances
	Telephone cable
	LAN cable
CONTINUOUS CONDUCTED EMISSIONS	
Supply	
Mains supply	
T. in Power Supply (dBµV)	PASS Vqp< lim QP + Vavg< lim AVG
Additional supply:	
T. in Line Supply (dBµV)	
T. in charge terminals(dBµV)	
T. in charge terminals(dBµV)	
Source and type of the most important emissions:	
Source: Device Under Test	Type: Narrow Band
Telecommunication Ports	
Port type:	
T. in telecommunication port (dBµV)	Test not applicable
Source and type of the most important emissions	
Source:	Type:
FINAL RESULTS: PASS	
Comments:	

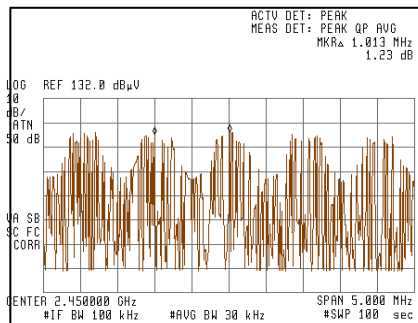
SECTION 15.247 a) 1			
Petitioner: INGENICO BARCELONA, S.A		Device under test: Payment terminal	
		Brand: INGENICO	
		Model: I7780+7780BAS+ALI0085 BTv1	
Standard: FCC CFR 47 Part 15 subpart C RSS 210		Serial number: 8103503699+5149400132+id.45	
		Reception date: 05-02-2005 (terminal), 26-04-2005 (base and power supply)	
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210		Test type: Conformity	Temperature: 22,0 °C
Criteria: PASS			Humidity: 37,80%
Technician: Héctor Carreño		Atm. Pressure: 1001,00 hPa	
Supervised:		DUT exercise:	
Test date: 2005-04-26		MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery.	
		MODE2: BASE tested alone. Terminal locked with base and separated 20 m.	
		MODE3: TERMINAL tested alone. Terminal unlocked with base.	
Auxiliary equipment: Receiver EMI HP model 8546A.		modes 1&2: 120V 60Hz supplied and mode 3: 6V DC battery supplied	
		Tested emissions are worst case for Rx and Tx mode.	
		Test disposition / communication cables: On Table	
		Two serial cables terminated with impedances	
Resolution Bandwidth: 100kHz		Telephone cable	
		LAN cable	

TEST RESULTS : PASS

Base [MODE 2]
Carries separated minimum 25kHz



Terminal [MODE 3]
Carries separated minimum 25kHz



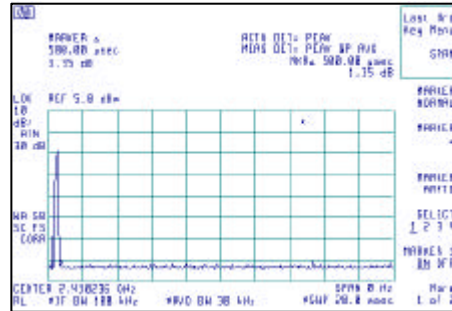
SECTION 15.247 a) 1 iii)	
Petitioner: INGENICO BARCELONA, S.A	Device under test: Payment terminal Brand: INGENICO Model: I7780+7780BAS+ALI0085 BTv1 Serial number: 8103503699+5149400132+id.45 Reception date: 05-02-2005 (terminal), 26-04-2005 (base and power supply)
Standard: FCC CFR 47 Part 15 subpart C RSS 210	
Perf. criteria according to: FCC CFR 47 Part 15 subpart C RSS 210	Test type: Conformity
Criteria: PASS	Temperature: 22,0 °C Humidity: 37,80% Atm. Pressure: 1001,00 hPa
Technician: Héctor Carreño	
Supervised:	DUT exercise:
Test date: 2005-04-26	MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery. MODE2: BASE tested alone. Terminal locked with base and separated 20 m. MODE3: TERMINAL tested alone. Terminal unlocked with base. modes 1&2: 120v 60Hz supplied and mode 3: 6Vdc battery supplied
Auxiliary equipment: Receiver EMI HP model 8546A.	Test disposition / communication cables: On Table

TEST RESULTS : PASS

CRITERIA: timing hopping < 0,4 seg
Observation time: 0,4 x n° channels = 0,4 x 79 = 31,6 seg

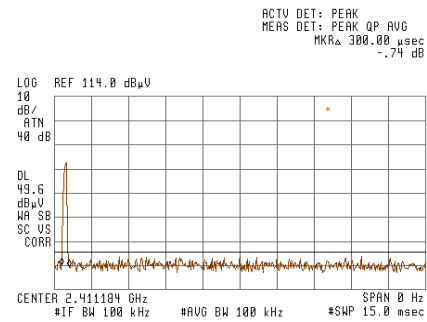
Base [MODE 2]
Fundamental: 2,41036GHz 0,316 < 0,4 seg

0,5ms timing channel
in 1seg 20ch
0,0005 x 20 x 31,6 = 0,316seg



Terminal [MODE 3]
Fundamental: 2,41184GHz 0,279 < 0,4 seg

0,3ms timing channel
in 1seg 29ch
0,0003 x 29 x 31,6 = 0,279seg



SECTION 15.247 b) 1	
Petitioner: INGENICO BARCELONA, S.A	Device under test: Payment terminal Brand: INGENICO Model: I7780+7780BAS+ALI0085 BTv1 Serial number: 8103503699+5149400132+id.45 Reception date: 05-02-2005 (terminal), 26-04-2005 (base and power supply) (*)
Standard: FCC CFR 47 Part 15 subpart C RSS 210	Test type: Conformity
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210	Temperature: 22,0 °C (*)
Criteria: PASS	Humidity: 37,8% (*)
Technician: Héctor Carreño	Atm. Pressure: 1001,00 hPa (*)
Supervised:	DUT exercise:
Test date: 2005-04-26 (*)	MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery. MODE2: BASE tested alone. Terminal locked with base and separated 20 m. MODE3: TERMINAL tested alone. Terminal unlocked with base.
Auxiliary equipment: Receiver EMI HP model 8546A.	modes 1&2: 120v 60Hz supplied and mode 3: 6Vdc battery supplied Tested emissions are worst case for Rx and Tx mode.
Resolution Bandwidth: 1MHz	Test disposition / communication cables: On Table
TEST RESULTS : PASS	
CRITERIA: <i>maximum peak conducted < 1W</i>	
Base [MODE 2] Conduced peak(fundamental): f=2,4106GHz 5,2 dBm < 1W = 30dBm	
Terminal [MODE 3] Conduced peak(fundamental): f=2,441GHz 17,0 dBm < 1W = 30dBm	
(*) Hand held terminal brand INGENICO, model I7780 BTv2 s/n 8102518540; test product reception: 2005-05-26, test date: 2005-05-26. Temperature: 20,8 °C, humidity: 48,1 % and atm. Pressure: 1006,38hPa	

SECTION 15.249 d)	
INGENICO BARCELONA, S.A	Device under test: Payment terminal Brand: INGENICO Model: I7780+7780BAS+ALI0085 BTv1 Serial number: 8103503699+5149400132+id.45 Reception date: 05-02-2005 (terminal), 26-04-2005 (base and power supply)
Standard: FCC CFR 47 Part 15 subpart C RSS 210	Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS 210
Criteria: PASS	Test type: Conformity
Technician: Héctor Carreño	Temperature: 23,5 °C Humidity: 31,80% Atm. Pressure: 1004,81 hPa
Supervised:	DUT exercise:
Test date: 2005-04-29	MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery. MODE2: BASE tested alone. Terminal locked with base and separated 20 m. MODE3: TERMINAL tested alone. Terminal unlocked with base.
TEST AREA: SAC 2	modes 1&2: 120v 60Hz supplied and mode 3: 6Vdc battery supplied
Auxiliar equipment:	Tested emissions are worst case for Rx and Tx mode. Test disposition / communication cables: On Table Two serial cables terminated with impedances Telephone cable LAN cable
Resolution Bandwidth: 1MHz	
Video Bandwidth: 3Hz	
TEST RESULTS : PASS	
Payment terminal (Base+Terminal) [MODE 1] All frequency range at -50dBc or below AVG Limit	<input checked="" type="checkbox"/>
Base [MODE 2] All frequency range at -50dBc or below AVG Limit	<input checked="" type="checkbox"/>
Terminal [MODE 3] All frequency range at -50dBc or below AVG Limit	<input checked="" type="checkbox"/>