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

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 alone
Terminal 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 FCC CFR47 Part 15 rules subpart C Test: ① ☑ Radiated emissions RF (30-1000 MHz) ② ☑ Radiated emissions RF (1-24 GHz) ③ ☑ Continuous interference (150 kHz-30 MHz)	Class ☐ A ☑ B
APPLIED STANDARDS FOR EMISSIONS TESTS FCC CFR47 Part 15 rules subpart C 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 Radio Standards Specification (RSS-210):2001 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 belove 1GHz
- Semianechoic chamber EUROSHIELD 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 EUROSHIELD 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 EUROSHIELD 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 Nº 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 ± 4,3 dB by default; when it is different, it is given in the result section.
Conducted emissions: ± 2.1dB.

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

2.4Environmental 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)**

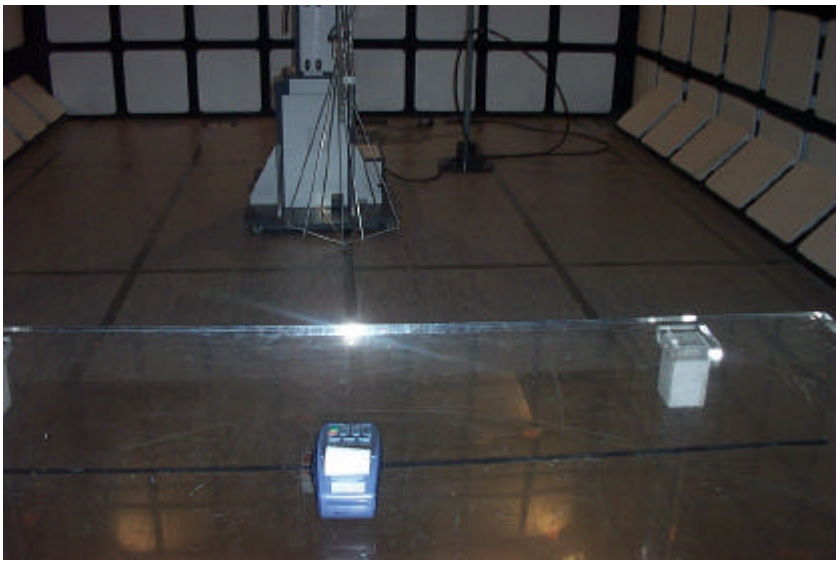
The measured results are within the limits, even when extended by the uncertainty interval.

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.

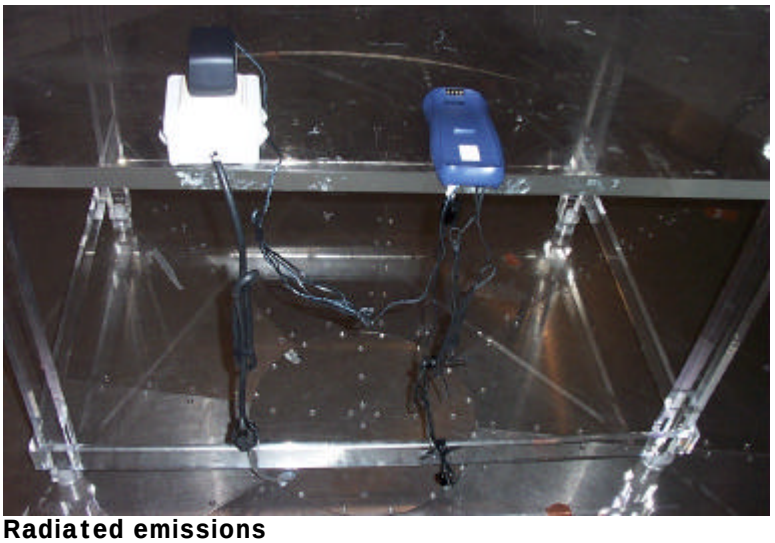
4.0 IDENTIFICATION PICTURES

Base model 7770BAS

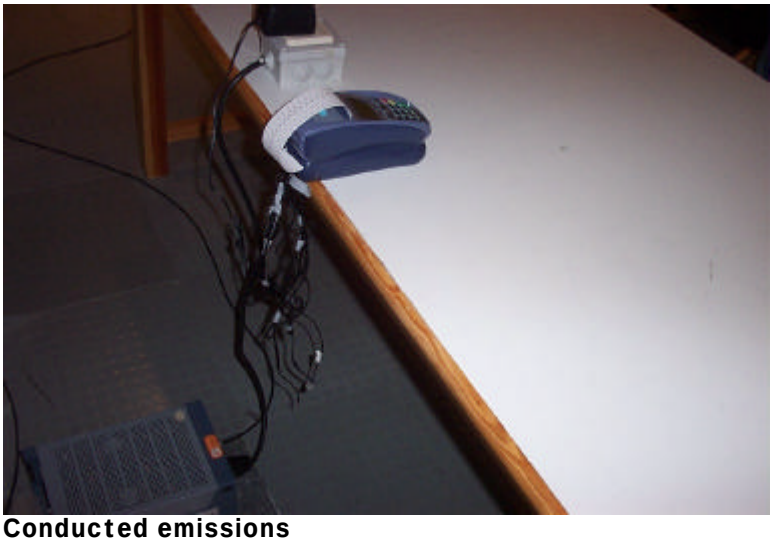


Terminal model I7770

4.1 TEST CONFIGURATION



Radiated emissions



Conducted emissions

5.0 ANNEX: DETAIL OF RESULTS

RADIATED EMISSIONS							
Petitioner: INGENICO BARCELONA, S.A				**Device under test:** Payment terminal Brand: INGENICO Model: I7770+7770BAS+ALI0075 BTv2 Serial number: 8136416413 + 8141404017 + 452003 Reception date: 2005-01-17			
Procedure: PT-104029							
Standard: Fcc CFR 47 Part 15 subpart C RSS-210:2001							
Perf. Criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001				**Test type:** Conformity		**Temperature:** 18,5 ºC **Humidity:** 39,30% **Atm. Pressure:** 1012,88hPa	
Technician: Héctor Carreño							
supervised:							
Test date: 2005-01-17				**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 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

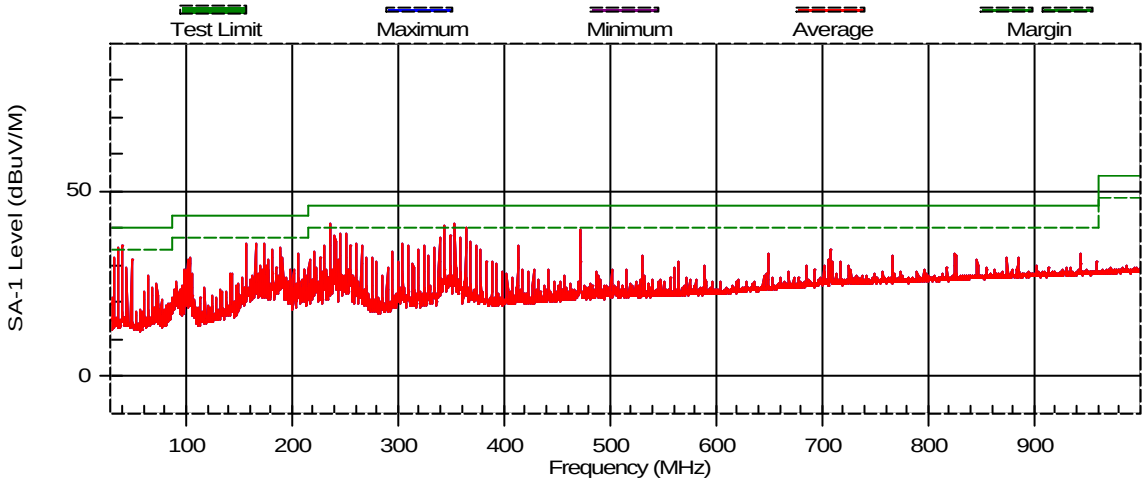
Test: Radiated Emissions
Standard: FCC part 15 subpart C
Test Area: SAC 2

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_BTV2_FCC_17-01-05 / 1 / 1 / 17/01/05 @ 17:34:57
(Corrected Data)



Final Test Results

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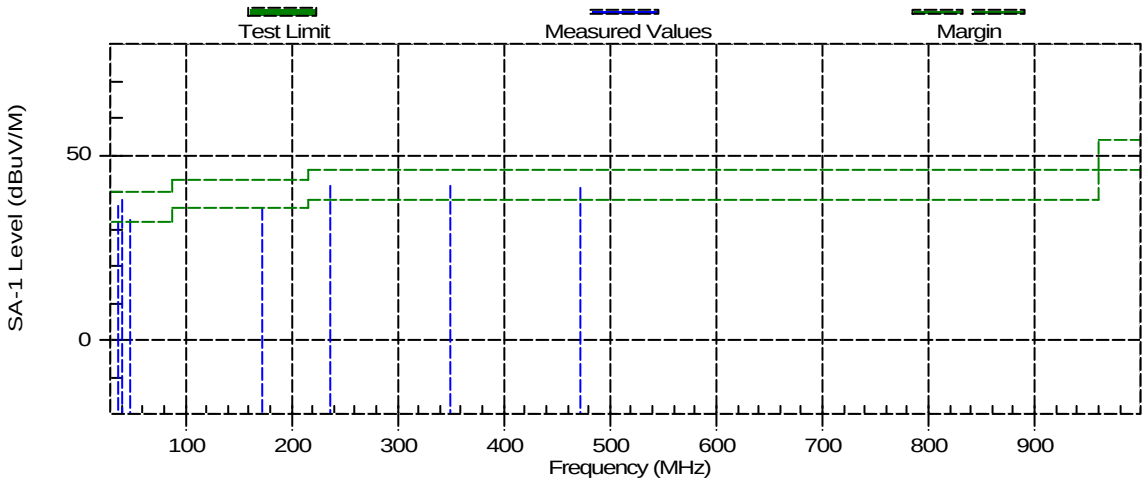


RADIATED EMISSIONS

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: Reception date:	8141404017 + 452003 2005-01-17
Perf. Criteria according to:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	**Test type:**	Conformity
Technician supervised:	Héctor Carreño	**Temperature:** **Humidity:** **Atm. Pressure:**	17,8 ºC 34,20% 1012,96 hPa
Test date:	2005-02-05		

Auxiliary equipment:

terminal mod. I7770

DUT exercise:

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	Emissions	Main emission source and type:
DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak	Limit > QP>=Limit -2dB	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

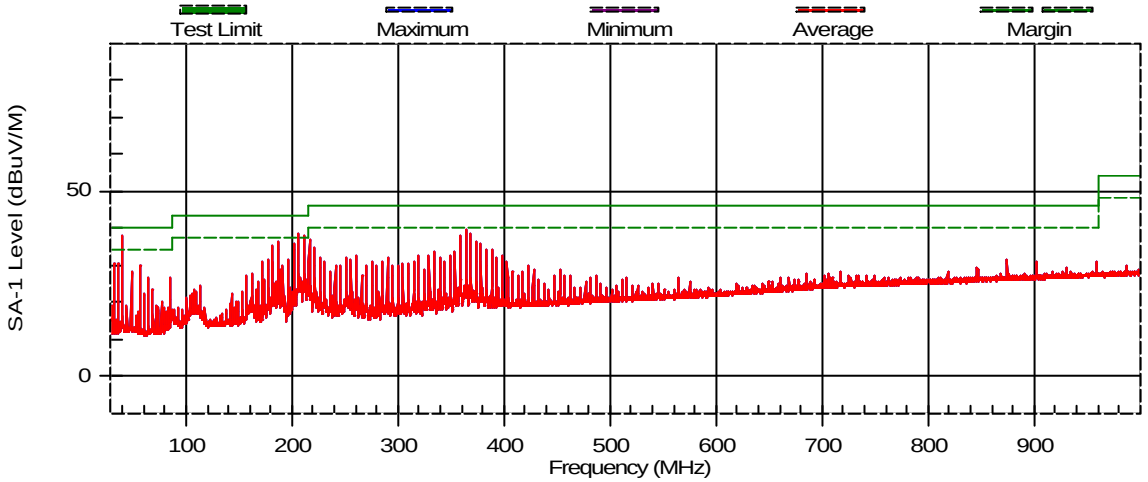
Test date:2005-02-06

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
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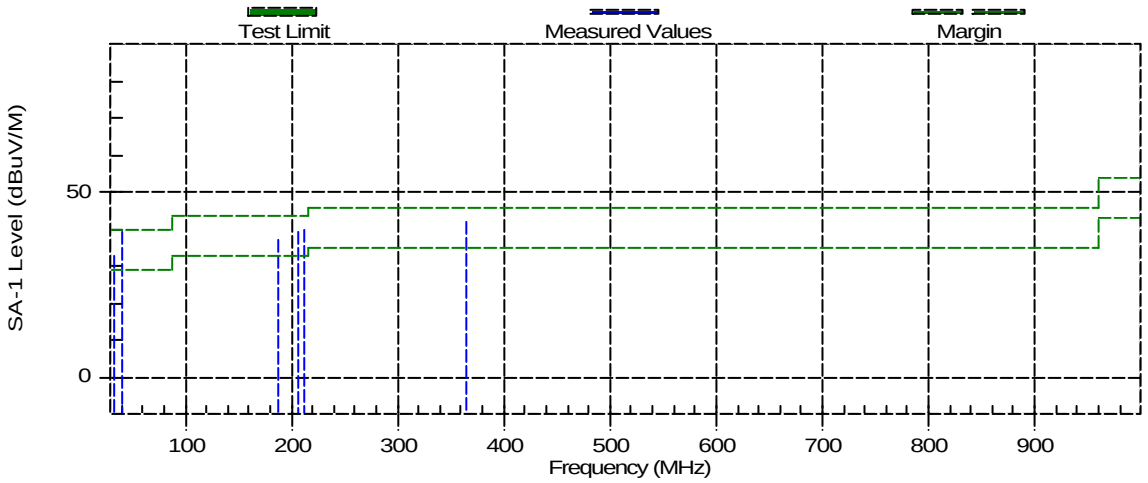


RADIATED EMISSIONS

Petitioner:	**INGENICO BARCELONA, S.A**	**Device under test:**	Payment terminal
		Brand:	INGENICO
Procedure:	PT-104029	Model:	I7770 BTv2
Standard:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	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
Technician:	Marc Pous	**Temperature:**	22 ºC
supervised:		**Humidity:**	34,10%
Test date:	2005-01-20	**Atm. Pressure:**	1008,92hPa
Auxiliary equipment:		**DUT exercise:**	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	Emissions	Main emission source and type:
DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak	Limit -4dB > QP>=Limit -6dB	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

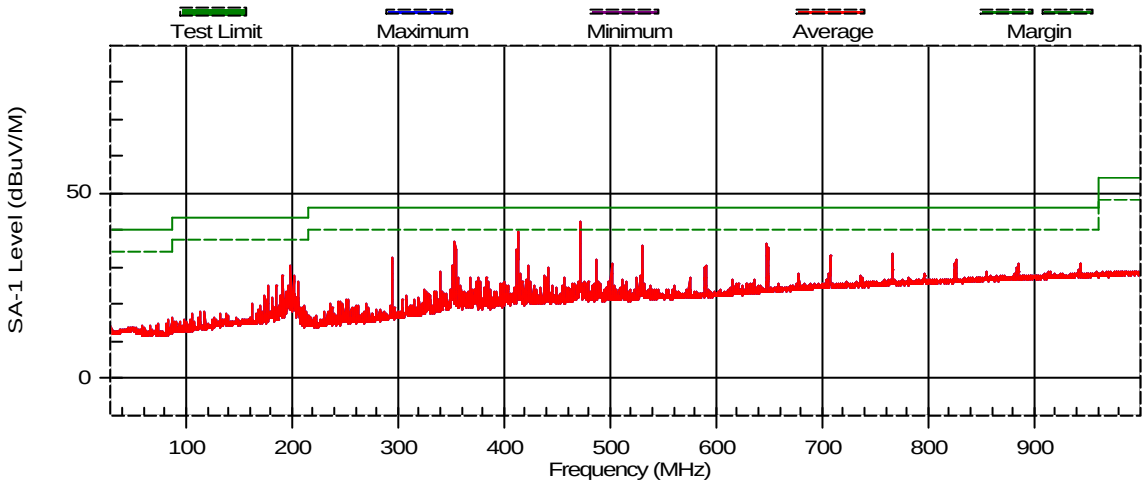
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

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

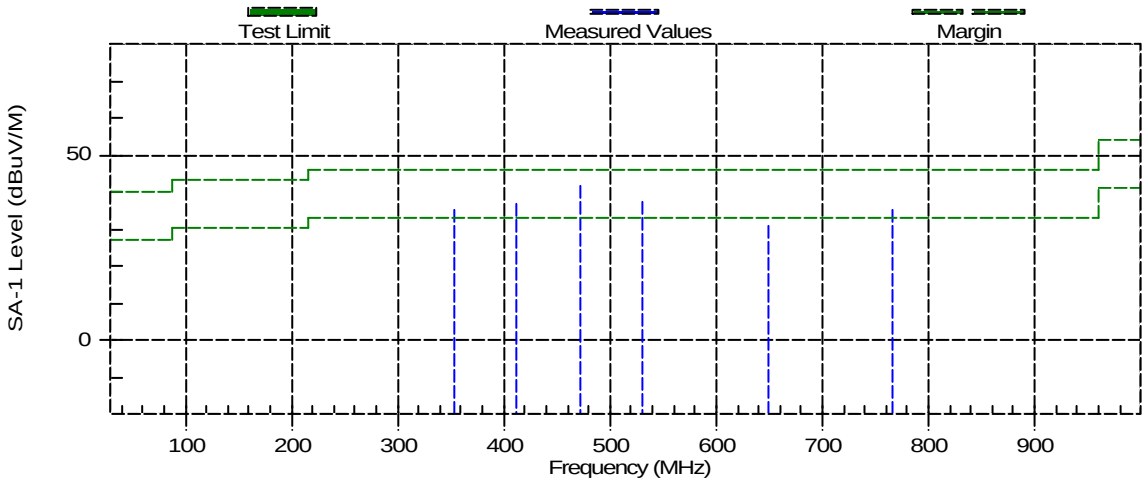
Prescan Test Results

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



RADIATED EMISSIONS

Petitioner:	**INGENICO BARCELONA, S.A**	**Device under test:**	Payment terminal
		Brand:	INGENICO
Procedure:	PT-104029	Model:	I7770+7770BAS+ALI0075 BTv2
Standard:	Fcc CFR 47 Part 15 subpart C	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:**	Conformity
		Temperature:	19,1 ºC
Technician:	Marc Pous	**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:		**Frequency range:**	1GHz - 24GHz
Two serial cables terminated with impedances			
Telephone cable		**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	Emissions	Main emission source and type:
DUT : Device Under Test		
AUX : Auxiliary Devices		DUT, NB
SYS : DUT + AUX		
BB : Broad-band		
NB : Narrow-band	Limit -6dB > AVG	
QP : Quasi-peak		

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

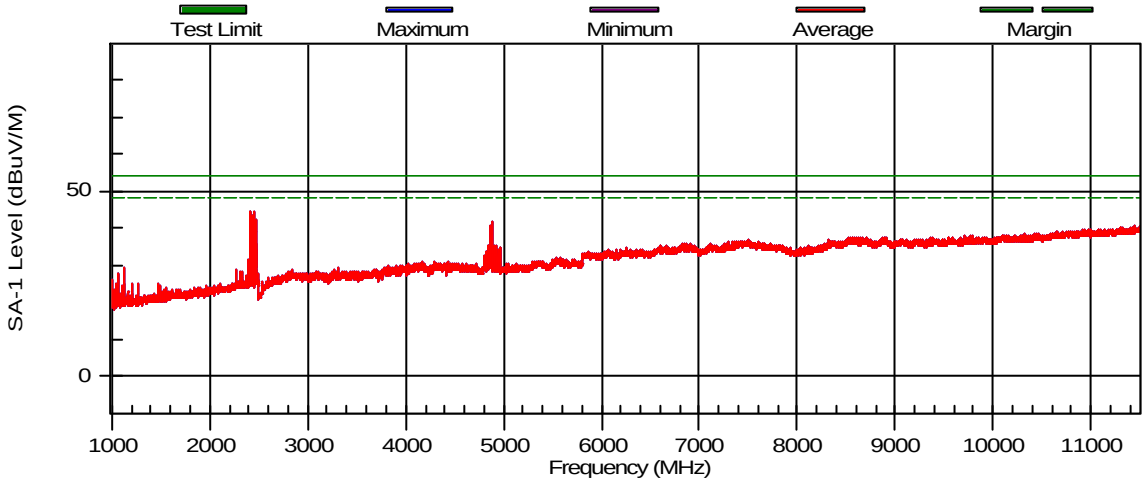
Test date: 2005-01-20

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

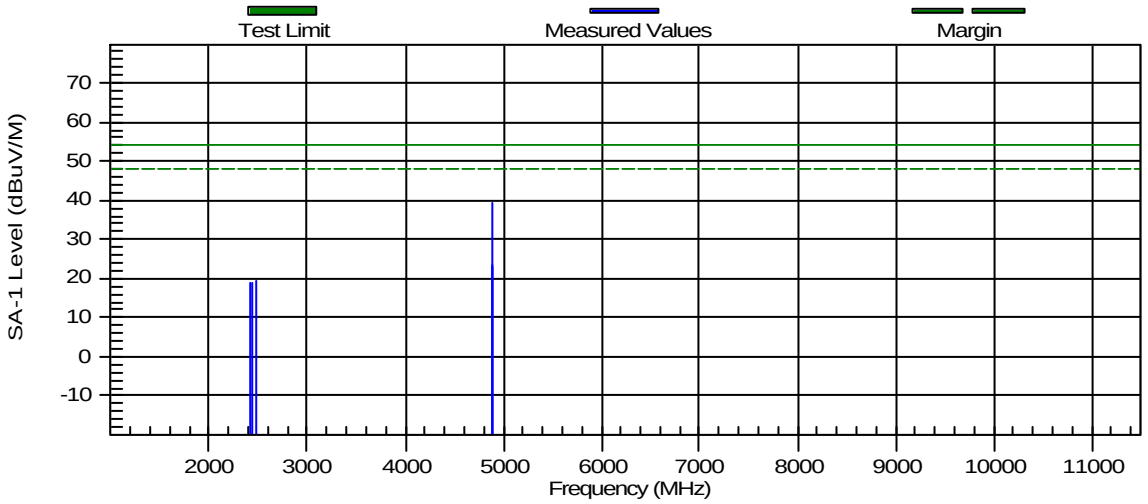
Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

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



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: Reception date:	8141404017 + 452003 2005-01-17
Perf. Criteria according to:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	**Test type:**	Conformity
Technician:	Marc Pous	**Temperature:**	19,5 ºC
supervised:		**Humidity:**	34,10%
Test date:	2005-01-20	**Atm. Pressure:**	1008,92hPa

Auxiliary equipment:

terminal mod. I7770

DUT exercise:

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	Emissions	Main emission source and type:
DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak	Limit -6dB > AVG	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"	"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

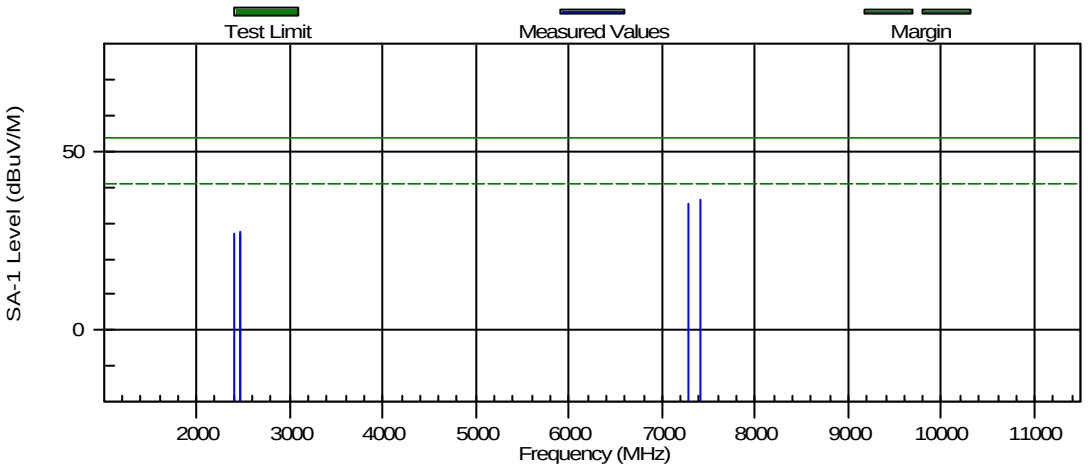
Test: Radiated Emissions
Standard: Fcc CFR 47 Part 15 (Class B) & RSS-210
Test Area: SAC 2

Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

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

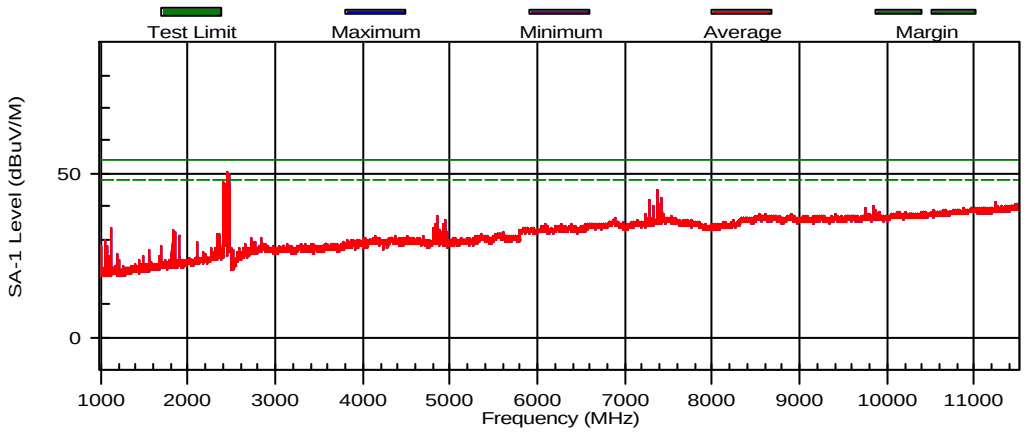
Final Test Results

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)



RADIATED EMISSIONS

Petitioner:	**INGENICO BARCELONA, S.A**	**Device under test:**	Payment terminal
		Brand:	INGENICO
Procedure:	PT-104029	Model:	I7770 BTv2
Standard:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	Serial number: Reception date:	8136416413+ 452003 2005-01-17
Perf. Criteria according to:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	**Test type:**	Conformity
Technician:	Marc Pous	**Temperature:**	19,5 ºC
supervised:		**Humidity:**	34,10%
Test date:	2005-01-20	**Atm. Pressure:**	1008,92 hPa
Auxiliary equipment:		**DUT exercise:**	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	Emissions	Main emission source and type:
DUT : Device Under Test AUX : Auxiliary Devices SYS : DUT + AUX BB : Broad-band NB : Narrow-band QP : Quasi-peak	Limit -6dB > AVG	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

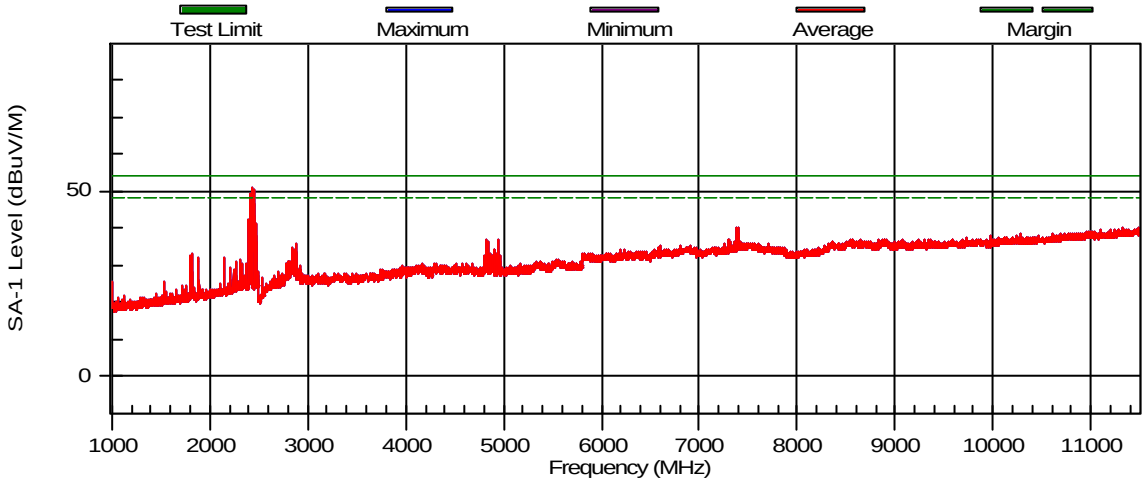
Test date: 2005-01-20

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

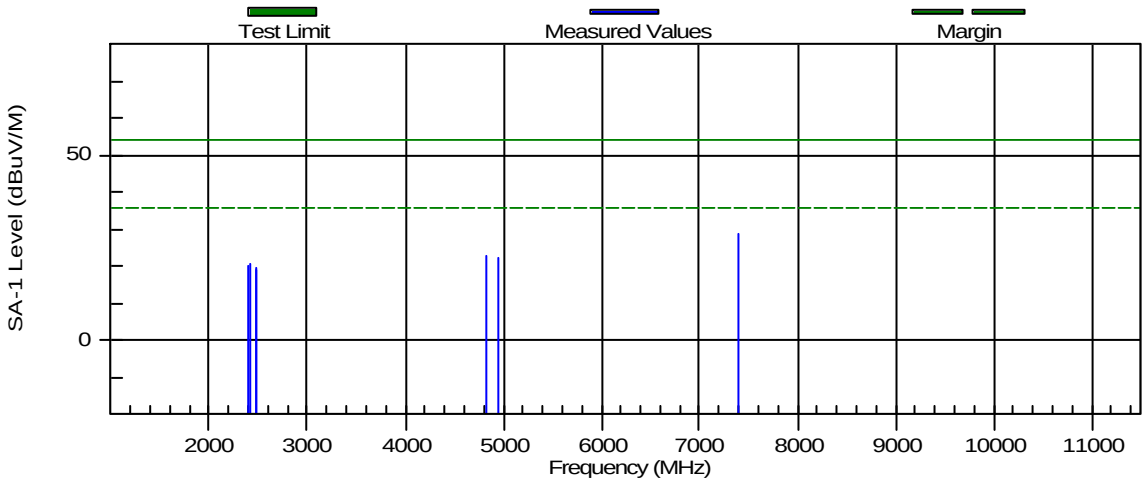
Petitioner: INGENICO
Manufacturer: INGENICO
Job Number: 1

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



CONDUCTED EMISSIONS

Petitioner:	**INGENICO BARCELONA, S.A**	**Device under test:**	Payment terminal
		Brand:	INGENICO
Procedure:	PT-104028	Model:	I7770+7770BAS+ALI0075 BTv2
Standard:	Fcc CFR 47 Part 15 subpart C	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:**	Conformity
Technician:	Héctor Carreño	**Temperature:**	19,8 ºC
		Humidity:	35,90%
		Atm. Pressure:	1012,88 hPa
Supervised:		**DUT exercise:**	
Test date:	2005-01-17	MODE1: TERMINAL AND BASE tested together.Automatic test mode: Burn-in test and charging battery	
		Power supply AC: 120V 60Hz	
Equipment:		Tested emissions are worst case for Rx and Tx mode.	
	RS ESHS30 EMI Receiver	**Test Area:**	FAC-1
	RS ESH2-Z5 LISN		Ground plane
		Test disposition / communication cables:	On Table
Auxiliary equipment:			

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

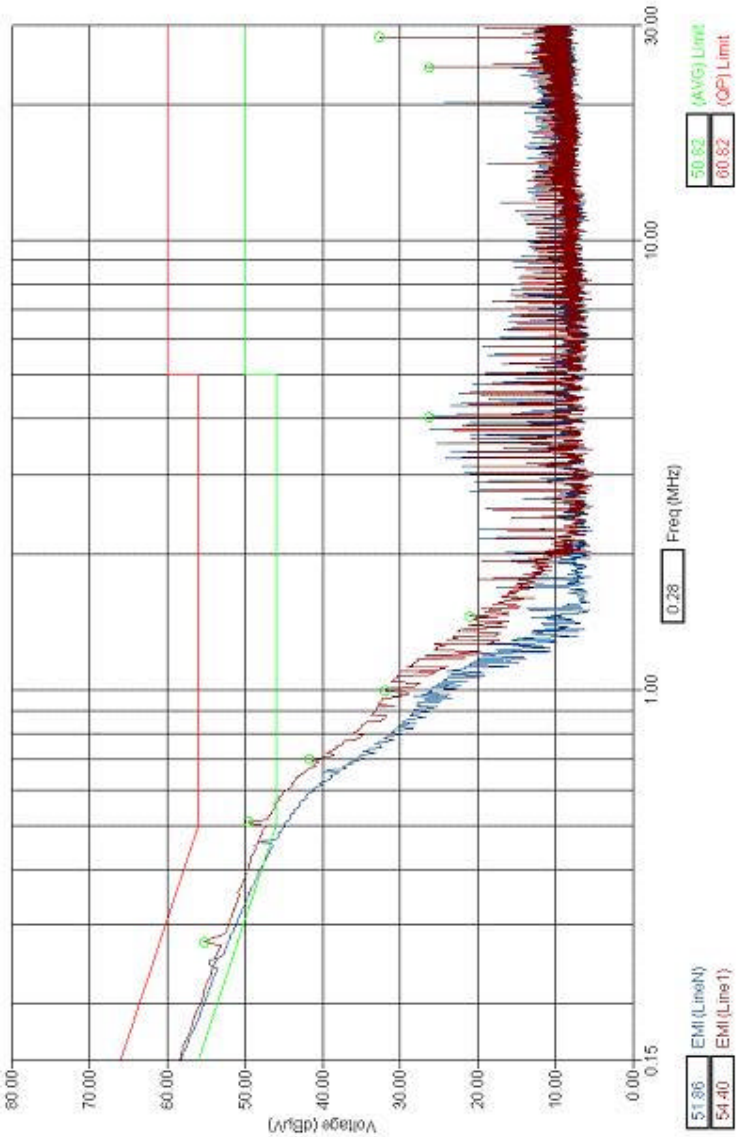
Source and type of the most important emissions

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

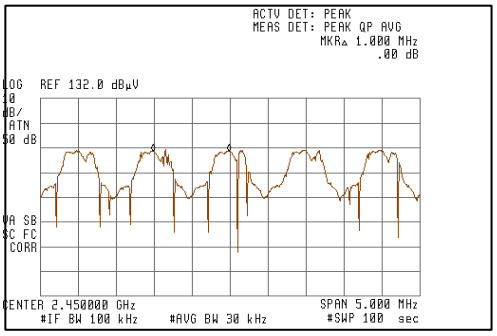
SECTION 15.247 a) 1

Petitioner: INGENICO BARCELONA, S.A	**Device under test:** Payment terminal Brand: INGENICO Model: I7770+7770BAS+ALI0075 BTv2 Serial number: 8136416413 + 8141404017 + 452003 Reception date: 17/01/2005
Standard: FCC CFR 47 Part 15 subpart C RSS-210:2001	
Perf. criteria according to: Fcc CFR 47 Part 15 subpart C RSS-210:2001	**Test type:** Conformity **Temperature:** 22,8 ºC **Humidity:** 15,20% **Atm. Pressure:** 995,0 hPa
Criteria: PASS	
Technician: Carreño/Pous	
Supervised:	**DUT exercise:**
Test date: 2005-02-16	MODE1: TERMINAL AND BASE tested together. Automatic test mode: Burn-in test and charging battery.
Auxiliary equipment: Receiver EMI HP model 8546A.	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

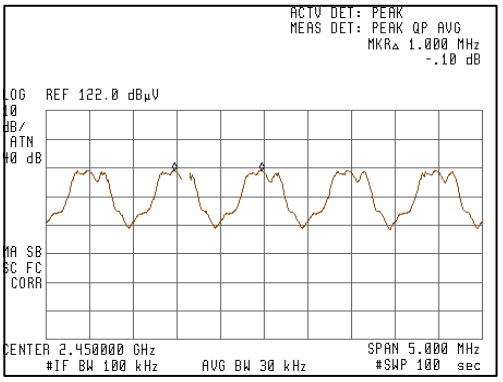
Base [MODE 2]

Carries separated minimum 25kHz ☑



Terminal [MODE 3]

Carries separated minimum 25kHz ☑



SECTION 15.247 b) 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		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:**	**Temperature:**	22,3, ºC (*)
Criteria: PASS	Conformity	**Humidity:**	19,1% (*)
Technician: Carreño/Pous		**Atm. Pressure:**	991,0 hPa (*)
Supervised:	**DUT exercise:**		
Test date: 2005/02/18 (*)	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		
	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: *maximum peak conduced < 1W*

Base [MODE 2]

Conduced peak(fundamental): f=2,479GHz 10,47dBm < 1W = 30dBm

Terminal [MODE 3] (*)

Conduced peak(fundamental):f=2,403GHz 15,82dBm < 1W = 30dBm

(*) Hand held terminal brand INGENICO, model I7780 BTv2 s/n 8136416413 with new Bluetooth module, test product reception: 2005-05-26, test date: 2005-06-08. Temperature: 23,8 ºC, humidity: 50,1 % and atm. Pressure: 1004,00hPa

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:**	Conformity
Criteria:	PASS	**Temperature:**	22,8 ºC
Technician:	Carreño/Pous	**Humidity:**	15,20%
		Atm. Pressure:	995,0 hPa
Supervised:		**DUT exercise:**	
Test date:	2005-02-16	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:		**Test disposition / communication cables:**	
Receiver EMI HP model 8546A.		On Table	

TEST RESULTS: PASS

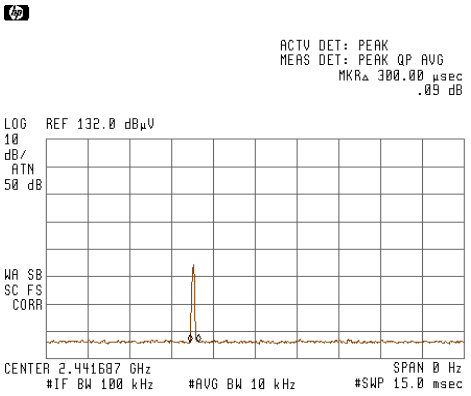
CRITERIA: *timing hopping < 0,4 seg*

Observation time: *0,4 x nº channels = 0,4 x 79 = 31,6 seg*

Base [MODE 2]

Fundamental: 2,441687GHz 0,36 seg < 0,4 seg

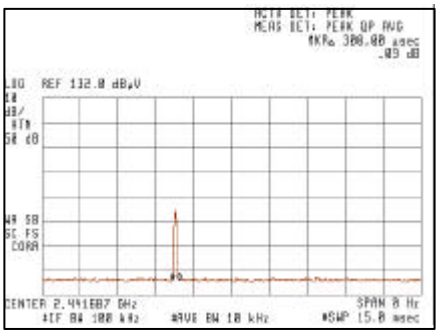
0,3ms timing channel
in 1seg 38ch
0,0003 x 38 x 31,6 = 0,36seg



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



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:**	**Temperature:** (note1) ºC
Criteria:	PASS	Conformity	**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 belove AVG Limit ☑

Base [MODE]
All frequency range at -50dBc or belove AVG Limit ☑

Terminal [MODE]
All frequency range at -50dBc or belove 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: Reception date:	8136416413 + 8141404017 + 452003 17/01/2005

Perf. criteria according to:	Fcc CFR 47 Part 15 subpart C RSS-210:2001	**Test type:**	**Temperature:** (note1) ºC
Criteria:	PASS	Conformity	**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.	
Resolution Bandwidth:	1MHz	**Test disposition / communication cables:**	On table
Video Bandwidth:	3Hz		

TEST RESULTS: PASS

CRITERIA: *Peak EMI < Limit AVG + 20 dB*

Payment terminal (Base+Terminal) [MODE 1]

Fundamental:	2,41GHz	79,8dBuV/m	< 94 dBuV/m + 20 dB
Harmonics:	4,831 GHz	43,4dBuV/m	< 54 dBuV/m + 20 dB

Base [MODE 2]

Fundamental:	2,471 GHz	101,4dBuV/m	< 94 dBuV/m + 20 dB
Harmonics:	7,413 GHz	57dBuV/m	< 54 dBuV/m + 20 dB

Terminal [MODE 3]

Fundamental:	2,408 GHz	106,4dBuV/m	< 94 dBuV/m + 20 dB
Harmonics:	4,831 GHz	49,6dBuV/m	< 54 dBuV/m + 20 dB

Note 1:

temperature, humidity, atm. Pressure, test date and technician are the same as test 15.209 for payment terminal, base and terminal