



SECURITE
HABITACLE

N°: 683080-430-001-A

APPROVAL DOCUMENT

S OUI ☐ NON ☒
R OUI ☒ NON ☐

GM delta Keyfob

Approval reference 736 566 A

	Name	Function	Date	Signature
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Level	Date	Name	Change description
	05/10/01	HF	Creation

ABSTRACT**Level A**

Technical information needs for the approval product.

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This document contents **14** pages including **5** pages of annexes

1. PURPOSE

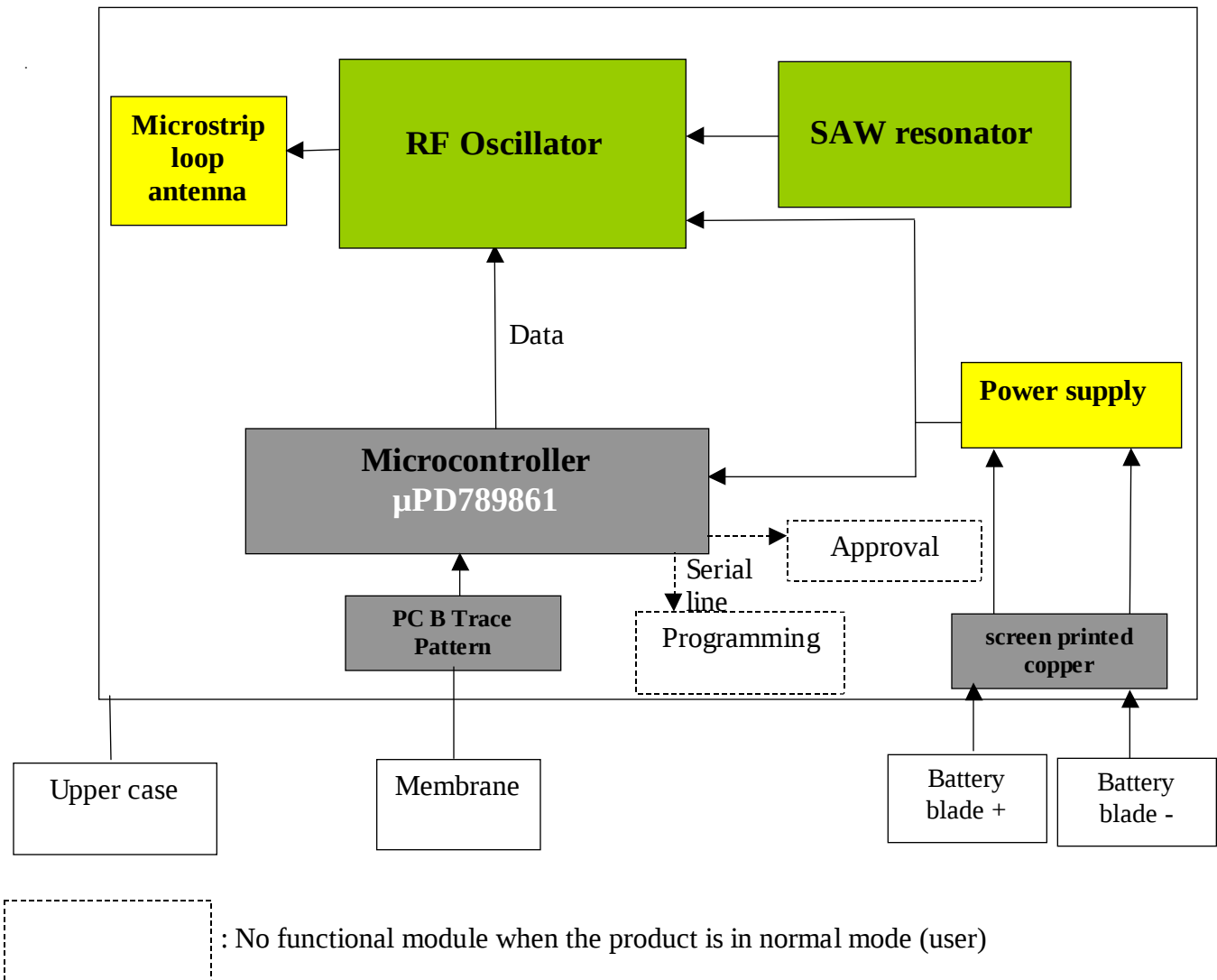
The aim of this document is to define the functional requirements of a device used to open or close remotely the doors following remote keyless. So it has to satisfy all standards in force in each country where the car will be sold.

2. THE PRODUCT AND ITS FUNCTIONAL ENVIRONMENT

The keyfob is a transmitter who provides enhanced customer convenience and security via a dedicated RF link with one or more electronic modules. The transmitter allows the customer to remotely activate functions by selectively depressing integral transmitter buttons.



Product description

2.1. BLOCK DIAGRAM**2.2. INTERNAL STRUCTURE**

The electronics of RF transmitter consists of a battery, of four PCB trace pattern for the pushbuttons of the silicone membrane, of a micro controller, of a Colpitts oscillator and an microstrip loop antenna. The micro controller detects activation of the trace pattern (short circuits between tracks). The oscillator is activated by the micro controller at the data rate of the data transmission. An interface of communication is necessary to initialize the transmitter and for the diagnostic. The micro controller is a NEC UPD789861.

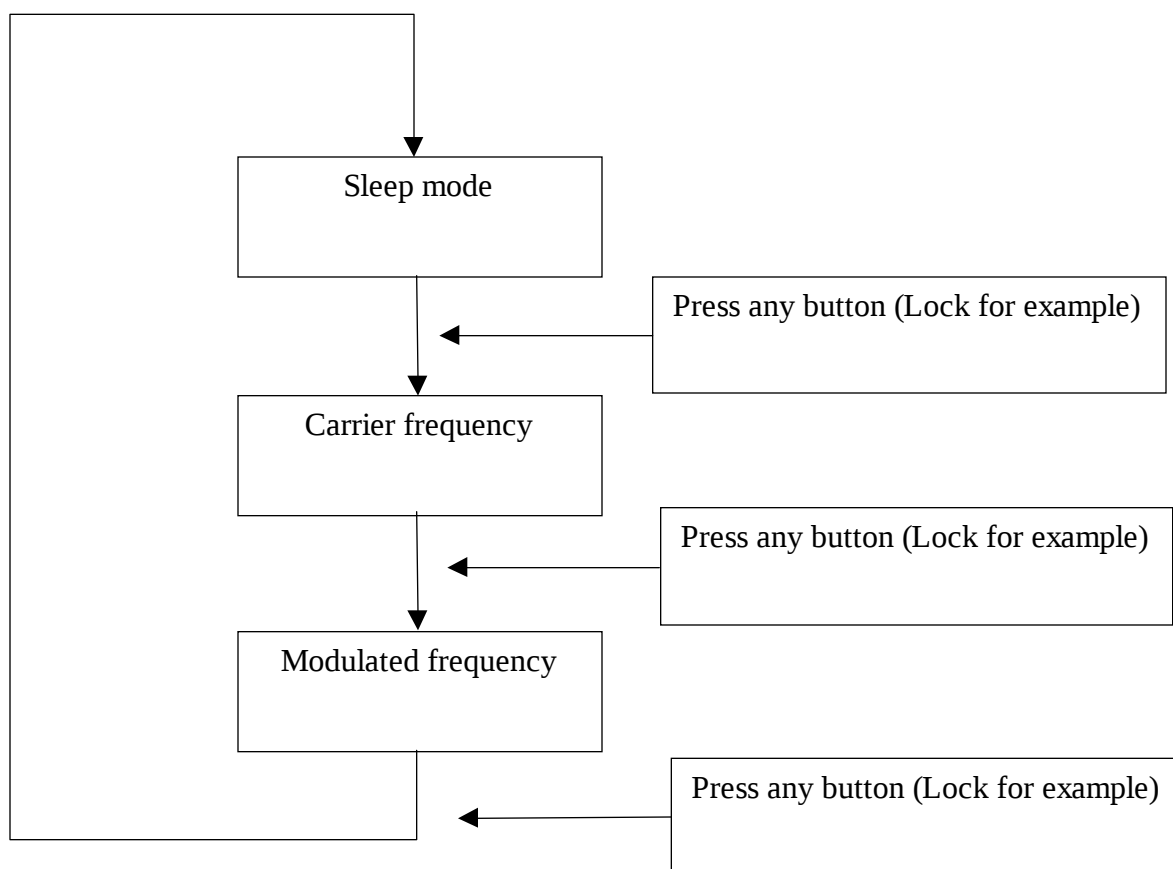
2.3. APPROVAL MODE

The transmitter have the capability of facilitate the RF testing by an approval mode. This mode is not accessible to the user because to enable it, we have to put a low level directly on the mode pin input of the microcontroller (thanks to a bridge of welding).

The approval mode has three states.

- **Sleep mode.**
- **Carrier frequency:** the transmitter generates a continuous R.F. signal at 315MHz.
- **Modulated frequency:** OOK modulation at 1.2 kbit/s with cyclic ratio of 50 %.

The transition from one state to another is accomplished by pressing one of the four buttons.



Technical description

Type designation part: **736566**

Transmitter part

✧	Carrier frequency :	315MHz fixed
✧	Frequency tolerance:	± 150kHz
✧	Method of carrier generation:	SAW oscillator
✧	Duty cycle:	<1%
✧	Type of modulation :	AMPLITUDE MODULATION On / Off keying (OOK)
✧	Baud rate:	1.2 kbits/s typ (1 kbits/s min, 1.4 kbits/s max)
✧	Coding mode used:	MANCHESTER
✧	Number of channels:	1
✧	Use:	Portable
✧	Duplex operation:	No
✧	Antenna:	Integrated
✧	Alternative antenna:	No
✧	Operating temperature range:	-20°C up to +60°C
✧	Rated Output Power:	75dBµV/m (under conditions 3V and 23°C)
✧	Voltage supply:	1 Lithium battery 3V (CR1620)
✧	Voltage supply range:	2,5 up to 3,2V
✧	DC consumption:	8 mA

2.4. BOM (BILL OF MATERIAL)

Reference USINE : C00000443E.cms 05/10/2001
 # Numero de la carte : C00000443
 # Designation : TX RF DELTA PROTO BETA
 # Technicien CAO : MAQUIN
 # Responsable projet : FARINE
 # -----
 # Board Station BOM file
 # date : Friday October 5, 2001; 17:11:18

 # Variant : COMPLETE

CODE ACHAT	NOMBRE	DEFINITION	REFERENCE
75053669	1	CER, CER 1UF K 10V 0805 X5R, CMS	C10
75056009	1	CER, CER 6.8PF B 50V 0603 NPO, CMS	C9
75056024	1	CER, CER 100PF J 50V 0603 NPO, CMS	C3
75056025	1	CER, CER 22PF J 50V 0603 NPO, CMS	C4
75056027	1	CER, CER 4.7PF C 50V 0603 NPO, CMS	C7
75056030	1	CER, CER 27PF F 50V 0603 NPO, CMS	C1
75056033	1	CER, CER 2.7PF B 50V 0603 NPO, CMS	C5
75056034	1	CER, CER 12PF C 50V 0603 NPO, CMS	C8
75056037	1	CER, CER 1PF B 50V 0603 NPO, CMS	C6
75067025	2	RES, RES 0603 CM 1/16W 5% 10 OHMS, CMS	R7 R14
75067059	1	RES, RES 0603 CM 1/16W 5% 270 OHMS, CMS	R6
75067065	1	RES, RES 0603 CM 1/16W 5% 470 OHMS, CMS	R1
75067083	1	RES, RES 0603 CM 1/16W 5% 2.7 KOHMS, CMS	R5
75067095	1	RES, RES 0603 CM 1/16W 5% 8.2 KOHMS, CMS	R4
75067105	8	RES, RES 0603 CM 1/16W 5% 22 KOHMS, CMS	R2 R3 R8 R9 R10 R11 R12 R13
75072071	1	TRANS, TR NPN BFS505 SOT323, CMS	T1
75084077	1	SAW, SAWR 315.00MHz QCC8C, CMS	Q1
75089053	1	SELF, COIL 47nH J 0603 MLG 085, CMS	L1
99003898	1	IC, UPD789861 8BITS SSOP20, CMS	IC1

3. DELIVERED PARTS

Identification (serial number)	Part	Remarks
	Keyfob proto beta	Permanent TX
	Keyfob proto beta	Permanent TX
	Keyfob proto beta	Full functional

4. ANNEXES

Annex 1 : PCB – Upper layer of the printed circuit

Annex 2 : PCB –Lower layer of the printed circuit

Annex 3 : schematic plan

Annex 4: Disposal of the component plan

Annex 5 : Product's assembly plan

Technical drawing of a PCB layout for a radio frequency (RF) delta prototype (BETA).

Dimensions:

- Overall width: 50.80
- Overall height: 53.34

PCB Layout:

- Central component: A rectangular chip labeled C00000443E.
- Surrounding components: Various electronic components, including capacitors, resistors, and a network of interconnecting lines.
- Mounting holes: Four circular holes are located at the corners of the PCB.

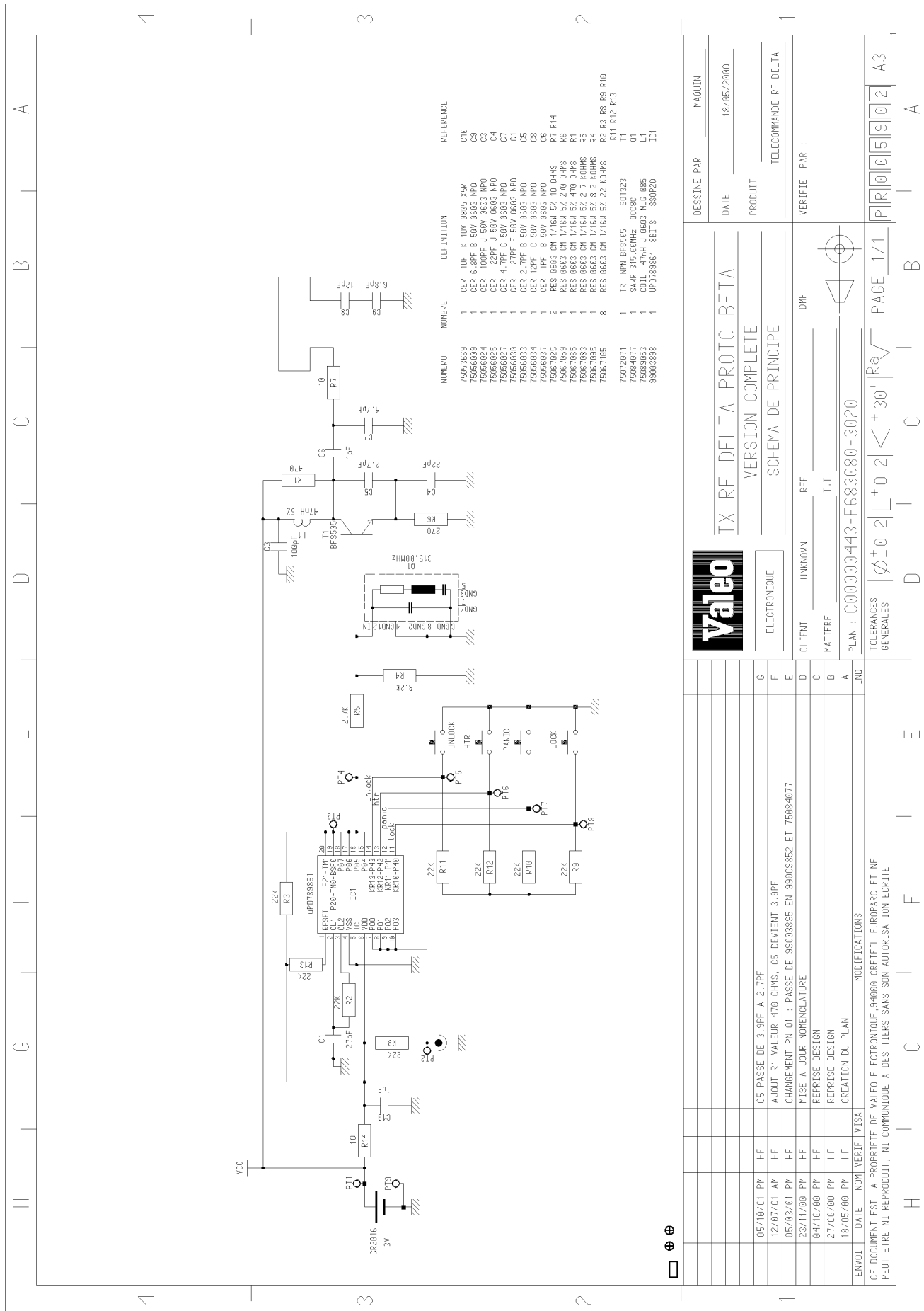
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DATE	NOM	VERIF	VISA	MODIFICATIONS
12/07/01	AM	HF		AJOUT R1 VALEUR 470 OHMS, C5 DEVIENT 3.9PF
13/02/01	PM	HF		MISE A JOUR DOSSIER
10/10/00	PM	HF		AJOUT ENCOCHE, MISE A JOUR MECANIQUE ET ELECTRIQUE
0	28/06/00	PM	HF	REPRISE PCB
0	19/05/00	PM	HF	CREATION DU PLAN

Specifications:

- TX RF DELTA PROTO BETA 3180
- C00000443E SUP 12/07/01
- CONDUCTEURS SUP
- fichier : (sup.ger)
- PLAN: C00000443-E683080-3180
- DMF
- CLIENT UNKNOWN
- MATIERE T.T
- VERIFIE :
- DATE 19/05/2000
- DESSINE PAR MANAS
- PRODUIT ELECTRONIQUE
- ELECOMMANDE RF DELTA
- ECH 2.50
- TOLERANCES GENERALES $\varnothing \pm 0.2$ L ± 0.2 < $\pm 30^\circ$ Rq
- PRO05941
- A3

ANNEX 3 - SCHEMATIC PLAN



ANNEX 4 - DIPOSAL OF THE COMPONENT PLAN

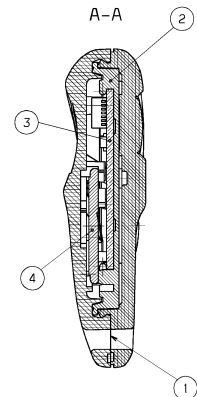
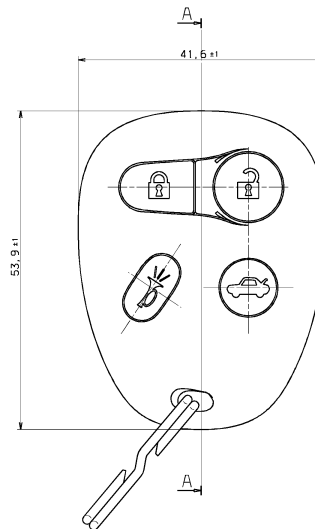
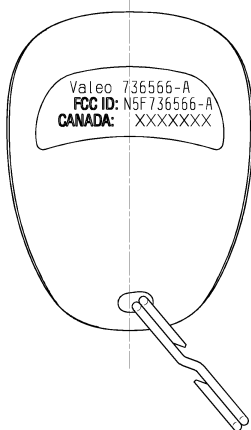
EQUIPEMENT SUP		450		X		Y		01		R11 R12 R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31 R32 R33 R34 R35 R36 R37 R38 R39 R40 R41 R42 R43 R44 R45 R46 R47 R48 R49 R50 R51 R52 R53 R54 R55 R56 R57 R58 R59 R60 R61 R62 R63 R64 R65 R66 R67 R68 R69 R70 R71 R72 R73 R74 R75 R76 R77 R78 R79 R80 R81 R82 R83 R84 R85 R86 R87 R88 R89 R90 R91 R92 R93 R94 R95 R96 R97 R98 R99 R100		IC1		2		Face sup		Face inf		79		Infos composants		Hauteur max CMS (mm)		Reference		Hauteur max traversants (mm)		Reference		Nombre de pads CMS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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3110 Fiche technique du plan

607 Soudure refusion

ANNEX 5 –PRODUCT’S ASSEMBLY PLAN

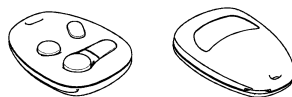
REP	DRAWING REF.	Qty	DESCRIPTION
1	735 00 815	1	Upper+lower+tabs+ring sub-assembly
2	738 60 447	1	Silicone membrane
3	C00000443-E	1	Pcb
4	750 39 218	1	Battery CR2016



SCHEMA.....réf. : C00000443-E683080-3020
 IMPLANTATION.....réf. : C00000443-E683080-3000
 SW Version.....réf. : V 1.4

REMARKS:

1. Transmitter fulfill specification No 683080-115-100-C



SCALE : 1/1

GENERAL TOUGHNESS		MATERIAL		SCALE	PLAN "P"	
According NFI 68000		Code:		5/2	TX GM DELTA	
CATEGORY 4, REDUCED CLAS		St:		⊙	Made by	
		PLATING		Valeo	Checked by	
		Mass:		ELECTRONIQUE	G. ROUSSEAU	
		Made for		2	J. LEXUAN	
		General Motors			09 OCTOBER 01	
		09 OCT 01			09 OCTOBER 01	
		CREATION			N°73656612	
		Modifications details			DE 683080	
		Ind. Date				
		Nos				

This drawing and device and non-invented action and drawn, are entirely confidential. They are the sole and exclusive property of Valeo Electronique S.A. They are the sole and not to be distributed or divulged without prior written agreement.

End of the DOCUMENT