

**Results of coverage map consistency measurements performed by operators in 2007**

The consistency rate expresses the rate of calls successfully made and maintained in the areas reputed to be covered by the operators. It corresponds to the “coverage rate in an area reputed to be covered” indicator of the protocol of 20 February 2007.

N.B.: this indicator does not express the operator’s coverage rate but the precision of the coverage map the operator has published. Due especially to radio propagation uncertainties, 100% consistency is difficult to attain.

Dpt    Canton    Canton name    Consistency rate in the area reputed to be covered    Consistency rate in the area reputed to be covered

Average on the districts of Sedan and Vouziers (Ardennes *département*)

			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
08	02	ATTIGNY	99%	99%
08	03	BUZANCY	85%	99%
08	04	CARIGNAN	97%	99%
08	08	LE CHESNE	97%	98%
08	12	GRANDPRE	99%	99%
08	14	MACHAULT	100%	100%
08	17	MONTHOIS	97%	99%
08	18	MOUZON	95%	97%
08	21	RAUCOURT-ET-FLABA	98%	90%
08	26	SEDAN-NORD	99%	96%
08	27	SEDAN-EST	99%	99%
08	30	TOURTERON	94%	98%
08	31	VOUZIERES	99%	100%
08	36	SEDAN-OUEST	100%	99%
08	99	SEDAN	100%	100%
<b>Moyenne sur les arrondissements de Sedan et Vouziers (dep. des Ardennes)</b>			<b>97%</b>	<b>98%</b>
27	01	AMFREVILLE-LA-CAMPAGNE	93%	97%
27	03	BEAUMESNIL	98%	96%
27	04	BEAUMONT-LE-ROGER	97%	99%
27	05	BERNAY-OUEST	99%	100%
27	06	BEUZEVILLE	98%	98%
27	07	BOURGTHEROULDE-INFREVILLE	99%	99%
27	08	BRETEUIL	98%	99%
27	09	BRIONNE	98%	99%
27	10	BROGLIE	99%	99%
27	11	CONCHES-EN-OUCHE	98%	99%
27	12	CORMEILLES	99%	98%
27	13	DAMVILLE	99%	99%
27	16	EVREUX-NORD	100%	100%
27	17	EVREUX-SUD	100%	100%
27	21	LOUVIERS-NORD	99%	100%
27	23	MONTFORT-SUR-RISLE	95%	99%
27	24	LE NEUBOURG	98%	99%
27	25	NONANCOURT	98%	99%
27	26	PACY-SUR-EURE	99%	98%
27	27	PONT-AUDEMER	98%	99%
27	29	QUILLEBEUF-SUR-SEINE	99%	98%

Dpt Canton Canton name Consistency rate in the area reputed to be covered Consistency rate in the area reputed to be covered

Average on the districts of Bernay and Evreux (Eure *département*)

			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
27	30	ROUTOT	99%	100%
27	31	RUGLES	99%	100%
27	32	SAINT-ANDRE-DE-L'EURE	98%	100%
27	33	SAINT-GEORGES-DU-VIEVRE	96%	95%
27	34	THIBERVILLE	100%	99%
27	35	VERNEUIL-SUR-AVRE	98%	100%
27	36	VERNON-NORD	100%	100%
27	37	EVREUX-EST	100%	99%
27	38	EVREUX-OUEST	99%	100%
27	39	LOUVIERS-SUD	99%	98%
27	40	VERNON-SUD	100%	98%
27	41	BERNAY-EST	98%	99%
27	96	BERNAY	99%	100%
27	97	VERNON	100%	100%
27	98	LOUVIERS	100%	100%
27	99	EVREUX	100%	100%
<b>Moyenne sur les arrondissements de Bernay et Evreux (dep. de l'Eure)</b>			<b>99%</b>	<b>99%</b>
41	01	BLOIS 1er CANTON	100%	100%
41	02	BLOIS 2e CANTON	100%	97%
41	03	BRACIEUX	93%	95%
41	04	CONTRES	98%	96%
41	06	HERBAULT	99%	97%
41	07	LAMOTTE-BEUVRON	94%	99%
41	08	MARCHENOIR	99%	96%
41	09	MENNETOU-SUR-CHER	96%	94%
41	10	MER	99%	97%
41	13	MONTRICHARD	97%	88%
41	15	NEUNG-SUR-BEUVRON	92%	97%
41	16	OUZOUER-LE-MARCHE	99%	96%
41	17	ROMORANTIN-LANTHENAY-NORD	71%	79%
41	18	SAINT-AIGNAN	94%	96%
41	20	SALBRIS	78%	97%
41	22	SELLES-SUR-CHER	93%	96%
41	27	BLOIS 5e CANTON	100%	98%
41	29	ROMORANTIN-LANTHENAY-SUD	84%	94%
41	30	VINEUIL	99%	99%
41	97	ROMORANTIN-LANTHENAY	99%	100%
41	99	BLOIS	100%	99%
<b>Moyenne sur les arrondissements de Blois et Romorantin-Lanthenay (dep. du Loir-et-Cher)</b>			<b>94%</b>	<b>96%</b>

Average on the districts of Blois and Romorantin-Lanthenay (Loire-et-Cher *département*)

Dpt	Canton	Canton name	Consistency rate in the area reputed to be covered	Consistency rate in the area reputed to be covered	Consistency
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Average on the districts of Foix and Pamiers (*Ariège département*)

			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
09	01	AX-LES-THERMES	98%	99%
09	02	LA BASTIDE-DE-SÉROU	92%	94%
09	03	LES CABANNES	96%	98%
09	05	FOIX-VILLE	96%	100%
09	06	LE FOSSAT	98%	98%
09	07	LAVELANET	98%	98%
09	08	LE MAS-D'AZIL	94%	99%
09	10	MIREPOIX	89%	98%
09	12	PAMIER-S-OUEST	99%	93%
09	13	QUERIGUT	98%	99%
09	17	SAVERDUN	91%	99%
09	18	TARASCON-SUR-ARIÈGE	99%	100%
09	19	VARILHES	100%	98%
09	20	VICDESSOS	96%	100%
09	21	FOIX-RURAL	96%	99%
09	22	PAMIER-S-EST	96%	100%
09	99	PAMIER-S	99%	100%
<b>Moyenne sur les arrondissements de Foix et Pamiers (dep. de l'Ariège)</b>			<b>96%</b>	<b>98%</b>
15	01	ALLANCHE	96%	99%
15	05	CHAUDES-AIGUES	98%	99%
15	06	CONDAT	94%	98%
15	08	MASSIAC	95%	98%
15	12	MURAT	99%	99%
15	13	PIERREFORT	95%	99%
15	16	RUYNES-EN-MARGERIDE	94%	99%
15	19	SAINT-FLOUR-NORD	94%	100%
15	20	SAINT-FLOUR-SUD	96%	96%
15	99	SAINT-FLOUR	100%	100%
<b>Moyenne sur l'arrondissement de Saint-Flour (dep. du Cantal)</b>			<b>96%</b>	<b>99%</b>
17	02	ARCHIAC	93%	99%
17	05	BURIE	88%	98%
17	08	COZES	87%	99%
17	09	GEMOZAC	90%	99%
17	11	JONZAC	91%	99%
17	16	MIRAMBEAU	91%	98%
17	17	MONTENDRE	98%	98%
17	18	MONTGUYON	78%	98%
17	19	MONTLIEU-LA-GARDE	92%	98%
17	20	PONS	93%	99%
17	27	SAINT-GENIS-DE-SAINTONGE	98%	100%
17	32	SAINT-PORCHAIRE	91%	100%
17	34	SAINTES-NORD	92%	99%
17	35	SAINTES-OUEST	85%	100%
17	36	SAUJON	88%	100%
17	51	SAINTES-EST	92%	99%
17	99	SAINTES	100%	100%
<b>Moyenne sur les arrondissements de Jonzac et Saintes (dep. des Charentes-Maritimes)</b>			<b>91%</b>	<b>99%</b>

Average on the district of Saint-Flour (Cantal *département*)

Average on the districts of Jonzac and Saintes (Charentes-Maritimes *département*)

Dpt	Canton	Canton name	Consistency rate in the area reputed to be covered rate in the area reputed to be covered	Consistency
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Average on the districts of Guingamp and Lannion (Côtes d'Armor *département*)

			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
22	01	BEGARD	100%	95%
22	02	BELLE-ISLE-EN-TERRE	93%	93%
22	03	BOURBRIAC	99%	95%
22	05	CALLAC	100%	96%
22	15	GOUAREC	98%	90%
22	16	GUINGAMP	96%	98%
22	19	LANNION	99%	100%
22	21	LEZARDRIEUX	95%	95%
22	23	MAËL-CARHAIX	99%	93%
22	27	MUR-DE-BRETAGNE	97%	94%
22	29	PERROS-GUIREC	97%	99%
22	33	PLESTIN-LES-GRÈVES	99%	93%
22	35	PLOUAGAT	97%	97%
22	36	PLOUARET	100%	97%
22	40	PONTRIEUX	99%	92%
22	42	LA ROCHE-DERRIEN	100%	96%
22	43	ROSTRENEEN	99%	96%
22	46	SAINTE-NICOLAS-DU-PELEM	98%	97%
22	47	TREGUIER	99%	98%
<b>Moyenne sur les arrondissements de Guingamp et Lannion (dep. des Côtes d'Armor)</b>			<b>98%</b>	<b>95%</b>
62	01	AIRE-SUR-LA-LYS	97%	99%
62	02	ARDRES	97%	98%
62	06	AUDRUICQ	99%	99%
62	13	BOULOGNE-SUR-MER-NOR	98%	94%
62	14	BOULOGNE-SUR-MER-SUD	100%	95%
62	15	CALAIS-NORD-OUEST	99%	99%
62	16	CALAIS-CENTRE	96%	99%
62	18	CAMPAGNE-LÈS-HESDIN	94%	95%
62	21	DESVRES	98%	96%
62	22	ETAPLES	94%	96%
62	23	FAUQUEMBERGUES	95%	95%
62	24	FRUGES	97%	94%
62	25	GUÏNES	98%	96%
62	26	HESDIN	96%	97%
62	29	HUCQUELIERS	97%	90%
62	34	LUMBRES	96%	94%
62	36	MARQUISE	99%	96%
62	37	MONTREUIL	98%	96%
62	41	SAINTE-OMER-NORD	99%	99%
62	42	SAINTE-OMER-SUD	99%	99%
62	44	SAMER	99%	96%
62	54	CALAIS-EST	100%	100%
62	61	OUTREAU	100%	95%
62	62	ARQUES	99%	100%
62	65	BOULOGNE-SUR-MER-NOR	100%	99%
62	69	BERCK	99%	97%
62	76	LE PORTEL	100%	99%
62	97	BOULOGNE-SUR-MER	100%	96%
62	98	CALAIS	100%	100%
62	99	SAINTE-OMER	100%	100%
<b>Moyenne sur les arrondissements de Boulogne-Sur-Mer, Montreuil, Sainte-Omer et Calais (dep. du Pas-de-Calais)</b>			<b>98%</b>	<b>97%</b>

Average on the districts of Sedan Boulogne-sur-Mer, Montreuil, Saint-Omer and Calais (Pas-de-Calais *département*)

Dpt	Canton	Canton name	Consistency rate in the area reputed to be covered	Consistency rate in the area reputed to be covered	Consistency
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Average on the districts of Altkirch, Mulhouse and Thann (Haut-Rhin *département*)



			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
68	01	ALTKIRCH	93%	96%
68	03	CERNAY	96%	99%
68	05	DANNEMARIE	94%	98%
68	07	FERRETTE	88%	96%
68	09	HABSHEIM	95%	100%
68	10	HIRSINGUE	96%	98%
68	11	HUNINGUE	89%	94%
68	13	SIERENTZ	92%	100%
68	15	MASEVAUX	100%	98%
68	17	MULHOUSE-SUD	97%	99%
68	22	SAINT-AMARIN	97%	94%
68	25	THANN	96%	97%
68	27	WITTENHEIM	96%	100%
68	31	ILLZACH	98%	100%
68	99	MULHOUSE	99%	100%
<b>Moyenne sur les arrondissements de Altkirch, Mulhouse et Thann (dep. Du Haut-Rhin)</b>			<b>95%</b>	<b>98%</b>
71	01	AUTUN-NORD	100%	100%
71	03	BOURBON-LANCY	96%	99%
71	08	LA CHAPELLE-DE-GUINCHAY	99%	99%
71	09	CHAROLLES	98%	100%
71	10	CHAUFFAILLES	98%	100%
71	11	LA CLAYETTE	96%	99%
71	12	CLUNY	99%	96%
71	13	COUCHES	99%	100%
71	14	LE CREUSOT-EST	96%	100%
71	17	DIGOIN	98%	99%
71	18	EPINAC	93%	99%
71	20	GUEUGNON	92%	98%
71	21	LA GUICHE	96%	100%
71	22	ISSY-L'ÉVÊQUE	94%	99%
71	24	LUCENAY-L'ÉVÊQUE	100%	98%
71	25	LUGNY	99%	98%
71	26	MÂCON-NORD	99%	96%
71	27	MÂCON-SUD	95%	98%
71	28	MARCIGNY	93%	99%
71	29	MATOUR	98%	99%
71	30	MESVRES	99%	96%
71	32	MONTCENIS	100%	100%
71	37	PALINGES	97%	99%
71	38	PARAY-LE-MONIAL	94%	99%
71	40	SAINT-BONNET-DE-JOUX	96%	99%
71	41	SAINT-GENGOUX-LE-NATIONAL	97%	100%
71	44	SAINT-LÉGER-SOUS-BEUVRAY	99%	97%
71	46	SEMUR-EN-BRIONNAIS	98%	99%
71	48	TOULON-SUR-ARROUX	95%	100%
71	49	TOURNAIS	95%	99%
71	50	TRAMAYES	100%	98%
71	52	AUTUN-SUD	96%	100%
71	55	MÂCON-CENTRE	98%	99%
71	95	AUTUN	99%	99%
71	96	LE CREUSOT	97%	99%

Dpt Canton Canton name Consistency rate in the area reputed to be covered Consistency rate in the area reputed to be covered

Average on the districts of Autun, Charolles and Mâcon (Saône-et-Loire *département*)

			Orange France	SFR
Dpt	Canton	Nom du canton	Taux de cohérence de la zone réputée couverte	Taux de cohérence de la zone réputée couverte
71	99	MACON	99%	99%
<b>Moyenne sur les arrondissements de Autun, Charolles et Mâcon (dep. de la Saône-et-Loire)</b>			<b>97%</b>	<b>99%</b>
83	03	LE BEAUSSET	97%	96%
83	06	CALLAS	98%	98%
83	07	COLLOBRIÈRES	97%	86%
83	08	COMPS-SUR-ARTUBY	99%	94%
83	10	CUERS	98%	99%
83	11	DRAGUIGNAN	98%	95%
83	12	FAYENCE	97%	93%
83	13	FRÉJUS	96%	97%
83	14	GRIMAUD	95%	97%
83	16	LORGUES	96%	92%
83	17	LE LUC	99%	97%
83	18	OLLIOULES	99%	93%
83	22	SAINT-TROPEZ	98%	99%
83	23	SALERNES	99%	97%
83	25	SOLLIES-PONT	100%	99%
83	36	LA CRAU	99%	98%
83	37	LE MUY	96%	97%
83	38	SAINT-MANDRIER-SUR-MER	98%	100%
83	39	SAINT-RAPHAËL	100%	97%
83	40	SIX-FOURS-LES-PLAGES	96%	100%
83	41	LA VALETTE-DU-VAR	91%	99%
83	42	LA GARDE	94%	100%
83	97	HYERES	100%	99%
83	98	LA-SEYNE-SUR-MER	98%	100%
83	99	TOULON	99%	99%
<b>Moyenne sur les arrondissements de Draguignan et Toulon (dep. Du Var)</b>			<b>98%</b>	<b>97%</b>

Average on the districts of Draguignan and Toulon (Du Var *département*)

**Decision no. 2008-0288**  
**dated 11 March 2008**  
**of Autorité de régulation des communications électroniques and des postes**  
**establishing the coverage survey perimeter**  
**to be used by mobile operators in 2008**

Autorité de régulation des communications électroniques and des postes,

In view of the Posts and Electronic Communications Code, and articles L. 32-1 and L. 42-1 in particular;

In view of ARCEP Decision no. 2006-0140 amended dated 31 January 2006 authorising Société Française du Radiotéléphone to use the frequencies in the 900 MHz and 1800 MHz bands to establish and operate a public wireless network;

In view of ARCEP Decision no. 2006-0239 amended dated 14 February 2006 authorising Orange France to use the frequencies in the 900 MHz and 1800 MHz bands to establish and operate a public wireless network;

In view of ARCEP Decision no. 2007-0178 dated 20 February 2007 stipulating the means for publishing coverage information and establishing the coverage survey protocol for mobile networks;

In view of ARCEP Decision no. 2007-0230 dated 13 March 2007 establishing the perimeter for the coverage surveys to be respected by the mobile operators for 2007;

In view of ARCEP Decision no. 2007-1114 dated 4 December 2007 establishing the conditions for renewing the frequency usage of Bouygues Telecom in the 900 and 1800 MHz;

In view of the letter dated 15 February 2008 from Orange France;

In view of the e-mail dated 27 December 2008 from Société Française du Radiotéléphone;

Following deliberations on 11 March 2008

### **On the regulatory framework**

Mobile coverage transparency obligations were introduced in the authorisations issued to Orange France and Société Française du Radiotéléphone in 2006. They are also planned for the renewal conditions for Bouygues Telecom. Under section 1.4.1 of Appendix 2 of these decisions, each *“operator is required to publish geographic coverage information at a sufficiently fine level to take account of geographic and demographic diversities, on an annual basis and by 31 December at the latest. The means of publishing this information are defined by ARCEP jointly with the operators in question. This information is obtained using a method defined by ARCEP jointly with the operators using on-site surveys which make it possible to appreciate the operator’s geographic coverage at the canton level, especially in village centres and along roadways. The operator is responsible for performing these measurements on its network. The methodology and annual geographic perimeter of these on-site surveys are defined by ARCEP jointly with the operator. The complete results of the surveys must be submitted to ARCEP.”*

ARCEP defined these measures in its Decision no. 2007-0178 dated 20 February 2007. This decision states that, before 15<sup>th</sup> March of each year, ARCEP chooses the list of cantons on which the operators must conduct on-site coverage surveys during the year, up to a total of 380 cantons. The operators

must conduct these surveys before 31<sup>st</sup> October of the same year, according to a protocol defined in Decision no. 2007-0178. It also states that when the results of a survey on a canton are inconsistent with the map published, the canton must be surveyed again the following year.

ARCEP Decision no. 2007-0230 established the survey perimeter for the year 2007: Orange France and Société Française du Radiotéléphone surveyed 242 cantons, grouped in districts in 11 different regions. Since the survey showed insufficient consistency on a number of cantons, these measurements must be redone in 2008.

Therefore, this decision defines the cantons which must be surveyed under Decision no. 2007-0178 for 2008.

**Decides:**

**Article 1** - The list of cantons which must be surveyed before 31<sup>st</sup> October 2008 is established in Appendix 1 of this decision. In accordance with Article 2 of abovementioned Decision no. 2007-0178, the operators submit their results of the corresponding surveys to ARCEP before 15 December 2008.

**Article 2** - The list of cantons which must be surveyed once again under the third paragraph of Article 2 of Decision no. 2007-0178 is defined in Appendix 2 of this decision for Orange France, and in Appendix 3 of this decision for Société Française du Radiotéléphone.

**Article 3** - The Director of the Operators and Regulation of Scarce Resources Division at ARCEP is responsible for executing this decision, which will be published in the *Journal Officiel* of the French Republic accompanied by its appendices.

Done at Paris, on 11 March 2008.

The Chairman

Paul Champsaur

**List of cantons to be surveyed in 2008  
(Appendix 1 of Decision no. 2008-0288)**

Département	Canton	Nom
2	2	Aubenton
2	3	Bohain-en-Vermandois
2	5	La Capelle
2	6	Le Catelet
2	16	Guise
2	17	Hirson
2	20	Moÿ-de-l'Aisne
2	23	Le Nouvion-en-Thiérache
2	25	Ribemont
2	27	Sains-Richaumont
2	29	Saint-Simon
2	33	Vermand
2	34	Vervins
2	37	Wassigny
2	39	Saint-Quentin-Nord
2	40	Saint-Quentin-Sud
2	98	Saint-Quentin
14	5	Blangy-le-Château
14	6	Bourguébus
14	7	Bretteville-sur-Laize
14	8	Caen 1er Canton
14	9	Caen 2e Canton
14	10	Cambremer
14	13	Creully
14	14	Douvres-la-Délivrande
14	15	Dozulé
14	16	Évrecy
14	17	Falaise-Nord
14	18	Falaise-Sud
14	19	Honfleur
14	21	Lisieux 1er Canton
14	22	Lisieux 2e Canton
14	23	Livarot
14	24	Méziidon-Canon
14	25	Morteaux-Coulibœuf
14	26	Orbec
14	27	Pont-l'Évêque
14	29	Saint-Pierre-sur-Dives
14	31	Thury-Harcourt
14	32	Tilly-sur-Seulles
14	34	Troam
14	35	Trouville-sur-Mer
14	37	Villers-Bocage
14	40	Caen 4e Canton
14	43	Caen 7e Canton
14	44	Caen 8e Canton
14	46	Caen 10e Canton
14	47	Cabourg
14	48	Ouistreham
14	49	Lisieux 3e Canton
14	93	Hérouville-Saint-Clair

Département	Canton	Nom
14	97	Caen
14	98	Falaise
14	99	Lisieux
19	1	Argentat
19	2	Ayen
19	3	Beaulieu-sur-Dordogne
19	4	Beynat
19	8	Corrèze
19	9	Donzenac
19	10	Égletons
19	12	Juillac
19	13	Lapleau
19	14	Larche
19	15	Lubersac
19	16	Mercoeur
19	18	Meysac
19	20	La Roche-Canillac
19	21	Saint-Privat
19	22	Seilhac
19	24	Treignac
19	28	Uzerche
19	29	Vigeois
19	30	Brive-la-Gaillarde-Sud-Est
19	33	Brive-la-Gaillarde-Sud-Ouest
19	34	Malemort-sur-Corrèze
19	35	Tulle-Campagne-Nord
19	36	Tulle-Campagne-Sud
19	98	Brive la Gaillarde
19	99	Tulle
2B	5	Belgodère
2B	10	Niolu-Omessa
2B	11	Calenzana
2B	12	Calvi
2B	17	Corte
2B	19	Ghisoni
2B	20	L'Île-Rousse
2B	24	Moïta-Verde
2B	25	Castifao-Morosaglia
2B	37	Orezza-Alesani
2B	41	Prunelli-di-Fiumorbo
2B	54	Bustanico
2B	58	Venaco
2B	60	Vezzani
30	2	Alès-Nord-Est
30	3	Alès-Ouest
30	4	Alzon
30	5	Anduze
30	8	Barjac
30	10	Bessèges
30	11	Génolhac
30	12	La Grand-Combe

Département Canton Name Département Canton Name

Département	Canton	Nom	Département	Canton	Nom
30	13	Lasalle	40	27	Tartas-Ouest
30	14	Lédignan	40	29	Dax-Sud
30	21	Quissac	40	97	Dax
30	24	Saint-Ambroix	40	99	Tartas
30	25	Saint-André-de-Valborgne	44	1	Aigrefeuille-sur-Maine
30	28	Saint-Hippolyte-du-Fort	44	4	Bouaye
30	29	Saint-Jean-du-Gard	44	5	Bourgneuf-en-Retz
30	31	Sauve	44	6	Carquefou
30	33	Sumène	44	7	La Chapelle-sur-Erdre
30	34	Trèves	44	9	Clisson
30	36	Valleraugue	44	10	Le Croisic
30	38	Vézénobres	44	13	Guérande
30	39	Le Vigan	44	14	Herbignac
30	41	Alès-Sud-Est	44	15	Legé
30	98	Ales	44	17	Le Loroux-Bottereau
39	1	Arbois	44	18	Machecoul
39	2	Arinod	44	29	Paimboeuf
39	3	Beaufort	44	30	Le Pellerin
39	4	Bletterans	44	31	Pontchâteau
39	5	Les Bouchoux	44	32	Pornic
39	6	Champagnole	44	35	Saint-Étienne-de-Montluc
39	10	Clairvaux-les-Lacs	44	36	Saint-Gildas-des-Bois
39	11	Conliège	44	41	Saint-Père-en-Retz
39	15	Lons-le-Saunier-Nord	44	42	Saint-Philbert-de-Grand-Lieu
39	16	Moirans-en-Montagne	44	43	Savenay
39	19	Morez	44	44	Vallet
39	20	Nozeroy	44	46	Vertou
39	21	Orgelet	44	47	Montoir-de-Bretagne
39	22	Les Planches-en-Montagne	44	50	Nantes 10e Canton
39	23	Poligny	44	51	Rezé
39	25	Saint-Amour	44	54	Orvault
39	26	Saint-Claude	44	55	Saint-Herblain-Ouest-Indre
39	27	Saint-Julien	44	57	La Baule-Escoublac
39	28	Saint-Laurent-en-Grandvaux	44	59	Vertou-Vignoble
39	29	Salins-les-Bains	44	96	Saint Herblain
39	30	Sellières	44	97	Rezé
39	31	Villers-Farlay	44	98	Saint Nazaire
39	32	Voiteur	44	99	Nantes
39	34	Lons-le-Saunier-Sud	73	1	Aiguebelle
39	97	Lons-le-Saunier	73	2	Aime
40	2	Amou	73	5	Albertville-Nord
40	3	Castets	73	6	Beaufort
40	4	Dax-Nord	73	7	Bourg-Saint-Maurice
40	12	Montfort-en-Chalosse	73	8	Bozel
40	14	Mugron	73	11	La Chambre
40	16	Peyrehorade	73	15	Grésy-sur-Isère
40	18	Pouillon	73	16	Lanslebourg-Mont-Cenis
40	21	Saint-Martin-de-Seignanx	73	17	Modane
40	23	Saint-Vincent-de-Tyrosse	73	20	Moûtiers
40	25	Soustons	73	25	Saint-Jean-de-Maurienne
40	26	Tartas-Est	73	26	Saint-Michel-de-Maurienne

Département Canton Name

Cantons to be surveyed again by Orange France (Appendix 2 of Decision no. 2008-0288):

Cantons to be surveyed again by SFR (Appendix 3 of Decision no. 2008-0288):

Département	Canton	Nom
73	28	Ugine
73	30	Albertville-Sud
73	98	Albertville
77	6	Claye-Souilly
77	7	Coulommiers
77	8	Crécy-la-Chapelle
77	9	Dammartin-en-Goële
77	12	La Ferté-sous-Jouarre
77	14	Lagny-sur-Marne
77	15	Lizy-sur-Ourcq
77	17	Meaux-Nord
77	26	Chelles
77	31	Meaux-Sud
77	33	Roissy-en-Brie
77	35	Torcy
77	36	Vaires-sur-Marne
77	37	Mitry-Mory
77	38	Champs-sur-Marne
77	39	Noisiel
77	40	Pontault-Combault
77	43	Thorigny-sur-Marne
77	97	Chelles
77	98	Meaux
88	1	Bains-les-Bains
88	3	Bruyères
88	4	Bulgnéville
88	5	Charmes
88	6	Châtel-sur-Moselle
88	7	Châtenois
88	9	Coussey
88	10	Damey
88	11	Dompaire
88	12	Épinal-Est
88	15	Lamarche
88	16	Mirecourt
88	17	Monthureux-sur-Saône
88	18	Neufchâteau
88	19	Plombières-les-Bains
88	21	Rambervillers
88	23	Remiremont
88	25	Saulxures-sur-Moselotte
88	27	Le Thillot
88	28	Vittel
88	29	Xertigny
88	30	Épinal-Ouest
88	99	Epinal

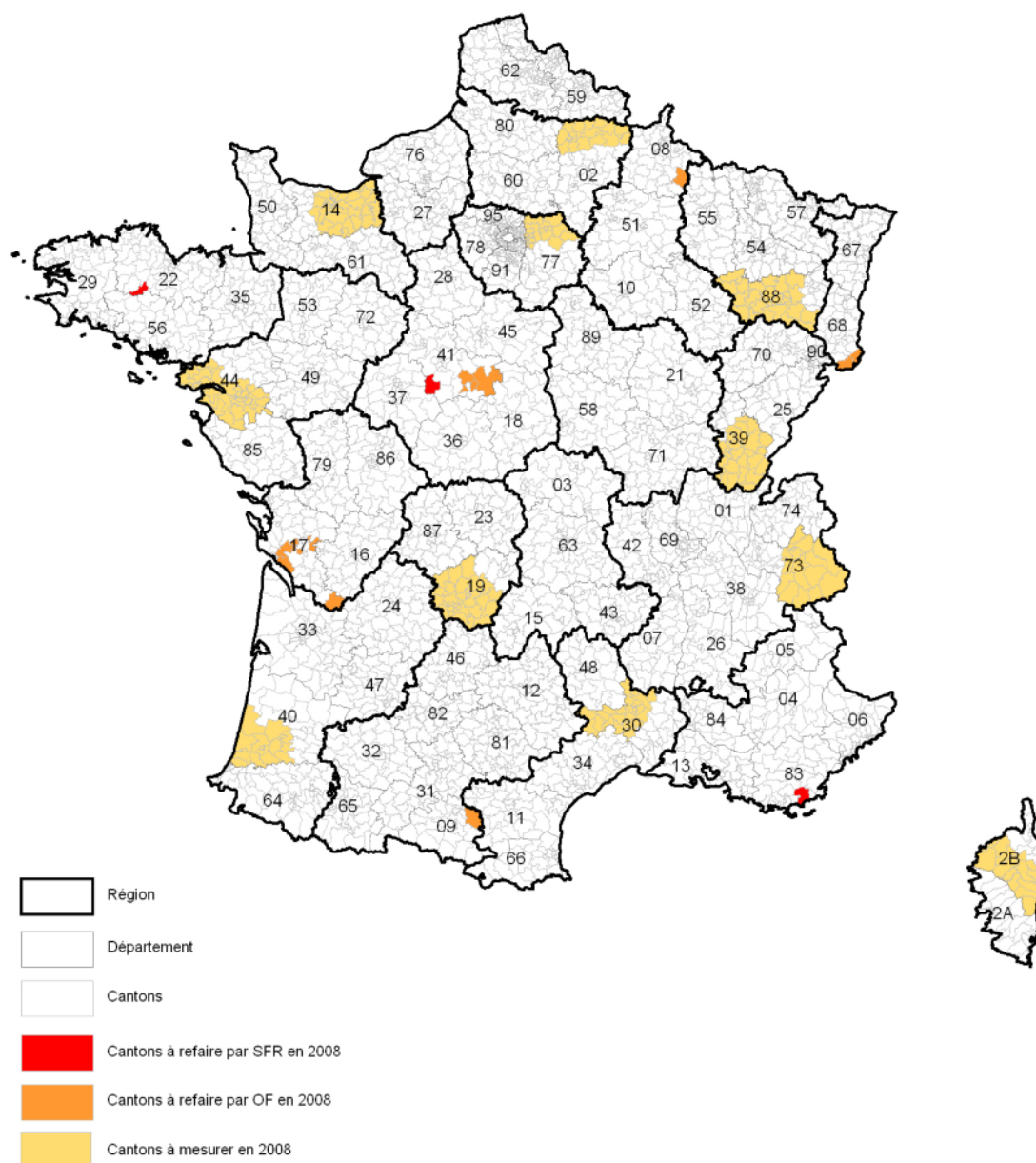
**Cantons à auditer à nouveau pour Orange France (annexe 2 de la décision n° 2008-0288):**

Département	Canton	Nom
8	3	Buzancy
9	10	Mirepoix
17	5	Burie
17	8	Cozes
17	18	Montguyon
17	35	Saintes-Ouest
17	36	Saujon
41	17	Romorantin-Lanthenay-Nord
41	20	Salbris
41	29	Romorantin-Lanthenay-Sud
68	7	Ferrette
68	11	Huningue

**Cantons à auditer à nouveau pour SFR (annexe 3 de la décision n° 2008-0288):**

Département	Canton	Nom
22	15	Gouarec
41	13	Montrichard
41	17	Romorantin-Lanthenay-Nord
83	7	Collobrières

Map of the cantons to be surveyed in 2008 (Decision no. 2008-0288)



Region  
Département  
Cantons  
Cantons to be resurveyed by SFR in 2008  
Cantons to be resurveyed by OF in 2008  
Cantons to be surveyed in 2008



## **Evaluation protocol of mobile network coverage in a canton**

**(Excerpt from Appendix 2 of Decision no. 2007-0178 dated 20 February 2007)**

The purpose of this protocol is to evaluate the coverage of an operator's mobile network in a canton through an on-site campaign, and to measure the validity of the coverage map which the operator publishes for this canton. Coverage is evaluated as a user's ability to gain access to the network and to maintain a call for at least one minute.

This protocol is identical to the one ARCEP drafted in 2001 in cooperation with the operators, and provided to municipalities to evaluate mobile network coverage as part of the "white area" programme.

Coverage evaluation is done through two on-site measurements, covering accessibility (defined as a user's ability to access the network, that is, to obtain a ringing signal on a single attempt) and the field level. Once this data has been obtained, the coverage as defined above can be obtained using an on-site calibration.

### **1. Measuring the validity of the map published by the operator**

An "area reputed to be covered" is an area which, at the survey start date, is said to be covered according to the map the operator has published in accordance with Appendix 1. Similarly, an area not said to be covered is called an "area reputed not to be covered".

To measure the validity of this map, the area reputed to be covered is tested at the canton level.

The map validity for a canton is measured by calculating the coverage rate within the area reputed to be covered in the canton, as defined in section 3.3.

It is important to note that the accessibility rate is by definition an upper bound of the coverage rate. These two concepts reflect two aspects of coverage. Coverage measured using the second concept is closer to customers' reality, whereas accessibility corresponds to a minimalist perception of simple coverage measured on the ground and which is the first step in measuring coverage.

The two stages of the protocol are presented below:

- measurement of accessibility
- evaluation of coverage, based on accessibility and field measurement

In practice, an insufficient accessibility rate in the area reputed to be covered of a canton could reveal an error in an operator's coverage map. This rate, which is defined in section 2.2, can be obtained by applying only section 2 of this protocol.

On the other hand, to show that the coverage map reflects reality in the canton, the protocol must be completed by also applying section 0 and by showing that the coverage rate in the area reputed to be covered of the canton is satisfactory. The surveys the operators perform each year must include both parts of the protocol.

### **2. Accessibility**

#### *2.1. Measurement protocol*

##### **2.1.1. Definition of measurement**

A measurement involves trying to make a real call and seeing if a ringing signal is heard on the mobile phone. However, the call is not answered and the connection not made.

If the call is not put through within 20 seconds of initiation of the connection attempt, the call is disconnected and considered a failure. If a busy tone is heard, the measurement is not taken into account. If the ringing signal is heard within 20 seconds, the accessibility measurement is successful.

#### 2.1.2. Conducting measurements

A five-second interval separates the release of one call and the launch of the successive network accessibility attempt. Moreover, two successive attempts must be separated by at least 15 seconds.

Accessibility measurements are performed on board a moving vehicle travelling at a normal speed for the roads being taken. The GPS coordinates must be acquired for each measurement point.

Although taken on board a vehicle, the measurements should take account of an external situation. Therefore, the measurement situation should be conducted and adjusted accordingly.

The calibration must also remain stable and no bias be introduced through the use of any specific equipment throughout the measurement campaign.

Calls are made from a mobile phone to a fixed phone, and may be made on any day of the week from 8.00 AM to 12.00 PM and from 2.00 to 6.00 PM.

Road safety imperatives must be taken into consideration.

#### 2.1.3. Measurement equipment

The mobile telephone chosen must be representative of the use of mobile services as much as possible.

#### 2.1.4. Measurement sampling

Within the canton being surveyed, the route on which the accessibility measurements are taken must pass by each of the town halls of each of the towns in this canton. There are no restrictions regarding the roads which may be taken in this trip; they may be national, *départemental* or *communal*. A minimal distance of 150 km per canton must be travelled. The distance may be less if the canton does not have 150 km of roadways. The route chosen in each canton must constitute a representative sample of all roadways in this canton (type and geographic breakdown of the roadways).

A minimum of 500 accessibility measurements must be taken per canton. Depending on the canton in question, the number of accessibility measurements may be increased as long as the statistical precision conforms to the requirements of section 2.2. These samples must be well distributed throughout the canton. To calculate the accessibility rate in the area reputed to be covered, the samples must also be well distributed throughout the area reputed to be covered by the operator.

### 2.2. Results

The survey results are composed of all the data mentioned below:

- **The canton accessibility rate**, equal to the percentage of measurements for which there was accessibility to the network. The statistical precision will be calculated and be an integral part of the results. Precision must be within 3%.
- **A computerised spreadsheet file** for all the accessibility measurements done in a mobility situation. It contains:
  - in column A: the measurement date
  - in column B: the measurement time
  - in column C: the X coordinate of the measurement in extended Lambert II
  - in column D: the Y coordinate of the measurement in extended Lambert II
  - in column E: an identifier of the mobile phone (IMSI, IMEI, etc.)
  - in column F: 1 if the point is in the area reputed to be covered, otherwise 0

- in column G: 1 if there was network accessibility, otherwise 0
- **A map of the canton showing:**
  - the accessibility measurements performed, with green points if there was accessibility, or red points if there was not
  - the area reputed to be covered by the operator, as a coloured area
- **The accessibility rate in the area reputed to be covered.** This rate is calculated using only the measurements taken in the area of the canton reputed to be covered by the operator. The statistical precision will be calculated and be an integral part of the results. This precision must be within 3%. In particular, as indicated in section 2.1.4, the samples in the area reputed to be covered by the operator must be sufficiently numerous and sufficiently spread out for statistical precision to be acceptable.
- **The accessibility rate in the area reputed not to be covered.** This rate is calculated using only the measurements taken in the area of the canton reputed to be not covered by the operator. The statistical precision will be calculated and be an integral part of the results.

### 3. Coverage

In addition to the accessibility measurement, the protocol may include coverage measurements, as indicated in section 1.

#### 3.1. *Measurement protocol*

##### 3.1.1. Definition of the measurement

In addition to the network accessibility measurements, the measurement protocol is based on field level measurements and on the establishment of real telephone calls.

These measurements may be combined in two sections:

- a “measurement” part composed of field level measurements done following each accessibility measurement, and
- a “calibration” part composed of real telephone calls and which makes it possible to create a statistical relation between the field level received by the mobile phone on the ground and the possibility of truly maintaining a telephone call for one minute knowing that the ringing signal was obtained

##### a) Field level measurements

These involve measuring on the beacon channel (the BCCH transmission channel) the RxLev field level received by the mobile. For each measurement, the field level chosen is the one corresponding to the most powerful beacon channel.

Because mobile phones can use another network to route emergency calls when they are off network, it is necessary to ensure that the field level measurements done for each network are actually for this network.

The RxLev\_Access\_Min parameter, available after the BCCH channel is decoded, is also recorded at each measurement.

##### b) Making real calls

Calls are made regularly in order to establish a relation between the field level on the beacon channel and a user’s possibility of establishing a call.

A call is considered successful if there was accessibility, that is, if the other telephone rang within 20 seconds, and if the call was established and maintained for one minute.

The field level (RxLev) is measured when the call is made. The RxLev\_Access\_Min parameter, available after the BCCH channel is decoded, is also recorded for each measurement.

#### 3.1.2. Performing measurements

Although taken on board a vehicle, the measurements should take account of an external situation. Therefore the measurement situation should be conducted and adjusted accordingly.

The calibration must also remain stable and no bias be introduced through the use of any specific equipment throughout the measurement campaign.

#### 3.1.3. Measurement equipment

It is recommended that trace mobiles be used. The mobile telephone chosen must be as representative as possible of the use of mobile services.

#### 3.1.4. Measurement sampling

The field level measurements are done at the same frequency as the network accessibility measurements. One field level measurement is taken immediately after each network access attempt. This means that the field level measurements are taken on board the moving vehicle.

Depending on the canton in question, the number of accessibility measurements may be increased as long as the statistical precision conforms to the requirements of section 3.3.

The real telephone calls are also established on board the measurement vehicle, but in a static situation. These calls may be made at different points on the route mentioned above.

### 3.2. *Data processing*

#### 3.2.1. Calibration relation

A curve showing the correspondence between the field level and the probability of making a successful call (knowing that there was accessibility to the network) will be drawn using one-minute-long calls. The relation constructed is designated in this protocol as the “calibration relation”.

For the same operator, if several cantons were surveyed in the same *département*, the measurements from more than one canton in the same *département* can be combined in creating this curve.

In establishing this curve, only real one-minute calls made in the *département* meeting the following two conditions are considered:

- $C1 = RxLev - RxLev\_Access\_Min > 0$
- accessibility was successful, that is, a ringing signal was obtained

Calls not meeting these conditions are not used in the survey.

Calls meeting these conditions are grouped by field level (for example by brackets of one dB). For each field level, N1 is the number of calls meeting these conditions. Of these N1 calls, N2 is the number of calls which were effectively maintained for one minute without being cut off. For each field level, we obtain the rate of calls which were established and maintained for one minute knowing that there was accessibility:  $N2 / N1$ . These rates, taken for each field level, give the calibration curve.

Special care must be taken for the precision and the reliability of this curve. The number of measurements necessary to create it and the distribution of these measurements according to the

different field level values will be chosen to ensure that the impact on the coverage rate calculated for the canton based on this curve and accessibility and field level measurements are within 3%.

### 3.2.2. Calculating the coverage rate

For each measurement point characterised by an accessibility measurement and a field level measurement, the probability of a successful call is equal to  $Pr = Pa \times Pb$  where:

- $Pa$  is equal to 1 if there was accessibility to the network, to 0 otherwise
- $Pb$  is equal to the probability for an established call to be maintained for one minute. This probability  $Pb$  is deduced from the field level measured at the point in question using the calibration relation described in section 3.2.1, which establishes a correspondence between the field level and the probability of making a successful call knowing that there was accessibility to the network.

The coverage rate is then calculated by averaging the probabilities of success  $Pr$  of one call over all the measurement points corresponding to the area in question.

### 3.3. Results

In addition to the results described in section 2.2, the survey results include all the data listed below:

- The coverage rate of the canton. The statistical precision will be calculated and is an integral part of the results. This precision must be within 3%
- A graph showing the calibration relation
- A computerised spreadsheet file for all the accessibility measurements done in a mobility situation. This file is obtained by adding the following information to the file described in section 2.2:
  - o in column H: RxLev
  - o in column I: RxLev\_Access\_Min.
- A second file for all the measurements used to establish the calibration relation, and which meet the two conditions defined in section 3.2.1. It contains:
  - o in column A: the measurement date
  - o in column B: the measurement time
  - o in column C: the X coordinate of the measurement in extended Lambert II
  - o in column D: the Y coordinate of the measurement in extended Lambert II
  - o in column E: an identifier of the mobile (IMSI, IMEI, etc.)
  - o in column F: 1 if the point is in area reputed to be covered, otherwise 0
  - o in column G: 1 for a call established and maintained for one minute, otherwise 0
  - o in column H: RxLev
  - o in column I: RxLev\_Access\_Min
- **The coverage rate in the area reputed to be covered.** This rate is calculated using only the field measurements taken in the area of the canton reputed to be covered by the operator. The statistical precision will be calculated and is an integral part of the results. This precision must be within 3%. In particular, as indicated in section 2.1.4, the samples in the area reputed to be covered by the operator must be sufficiently numerous and sufficiently spread out for statistical precision to be acceptable.
- The coverage rate in the area reputed not to be covered. This rate is calculated using only the field measurements taken in the area of the canton reputed to be not covered by the operator. The statistical precision will be calculated and is an integral part of the results.