# POLICE OPERATIONS

Brussels

22-03-2016

**Terrorist attacks on Airport Zaventem – Subway Maelbeek**

# Never before in time of crisis

- Two attacks at almost the same time
  (airport 7:58 and subway 9:10)
  and in a short range  (8 km=  4,97 miles)

- Same radio base stations in use for two sites

- Command centers Brussels:
  Federal crise center , police crise cel, army crise cel,
  governement, european commission …

- One MTU

- Two Region communication centers (VBR and BRU)

- Brussels local police communication centers (BRU HGW, MONTY, … )

- judicial operations (searches, arrests, ….)

- External clients Astrid (services subway, VUB security, …)

8h00
**Aéroport de Zaventem**

7,91 Km

9h11
**Station de métro de Maelbeek**
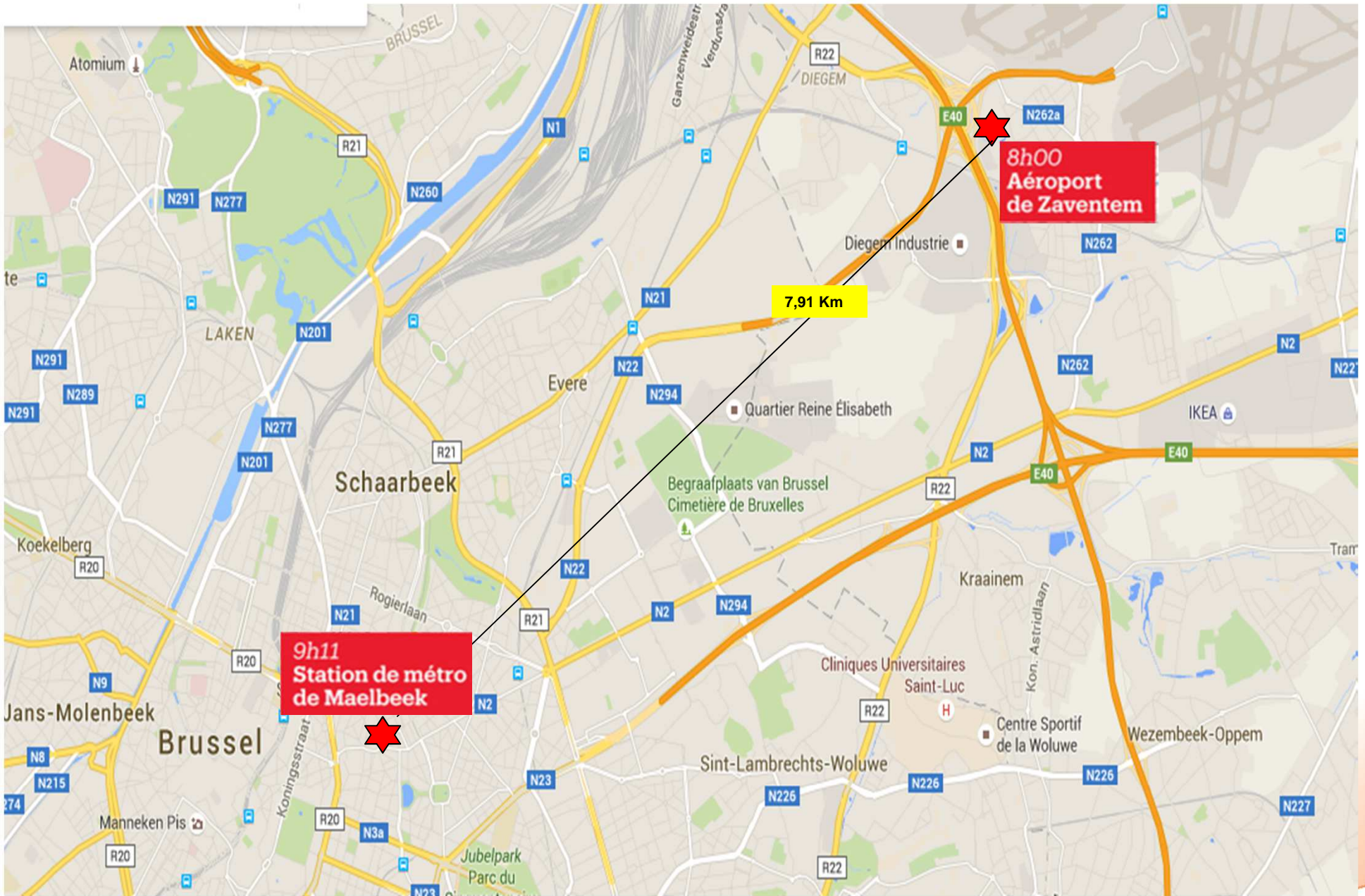
# Suicide bombing airport Brussels





At 7:58, a bomb exploded near the office of Brussels Airlines in the departure hall of the Airport. A second bomb exploded nine seconds later on the right side of the hall. At the airport fourteen people (including the two perpetrators) were killed. Nearly a hundred people were injured. The departure lounge was evacuated after the explosions. At the airport was still found a third unexploded bomb.

The Belgian federal prosecutor made later in the morning an announcement that it was a suicide bombing. One of the perpetrators was the Belgian Ibrahim El Bakraoui, brother of the perpetrator of the attack at Maalbeek; The other bomber was Najim Laachraoui.

| site | TBS | max trafic (min) | % trafiek | % queuing | | # ttrx |
|---|---|---|---|---|---|---|
| VB012 | Vilvoorde | 642 | 172% | 80,64 | | 3 |
| VB020 | Wezembeek-Oppem | 885 | 155% | 81,1 | | 4 |
| VB037 | Kampenhout | 445 | 119% | 12,38 | | 3 |
| VB101 | Main terminal | 687 | 120% | 9,66 | | 4 |
| VB102 | Parking luchthaven | 186 | 98% | 0,15 | | 2 |

## Communication groups

PZ Leuven:     650

Polfed:            501

Defense DGMR C&I O/D/R:          292

ZP Bxl-K-Xl:   211

IMEC: 136

Rood Kruiz Vlaanderen:       108

Brandweer leuven:    71

Radios 69:      50

PZ Grimbergen:         32

PZ Herko:      31

Fluxys:          24

PZ Kastze:     23

EANDIS:         14

PZ Druivenstreek:      13

Brandweer Asse:       10
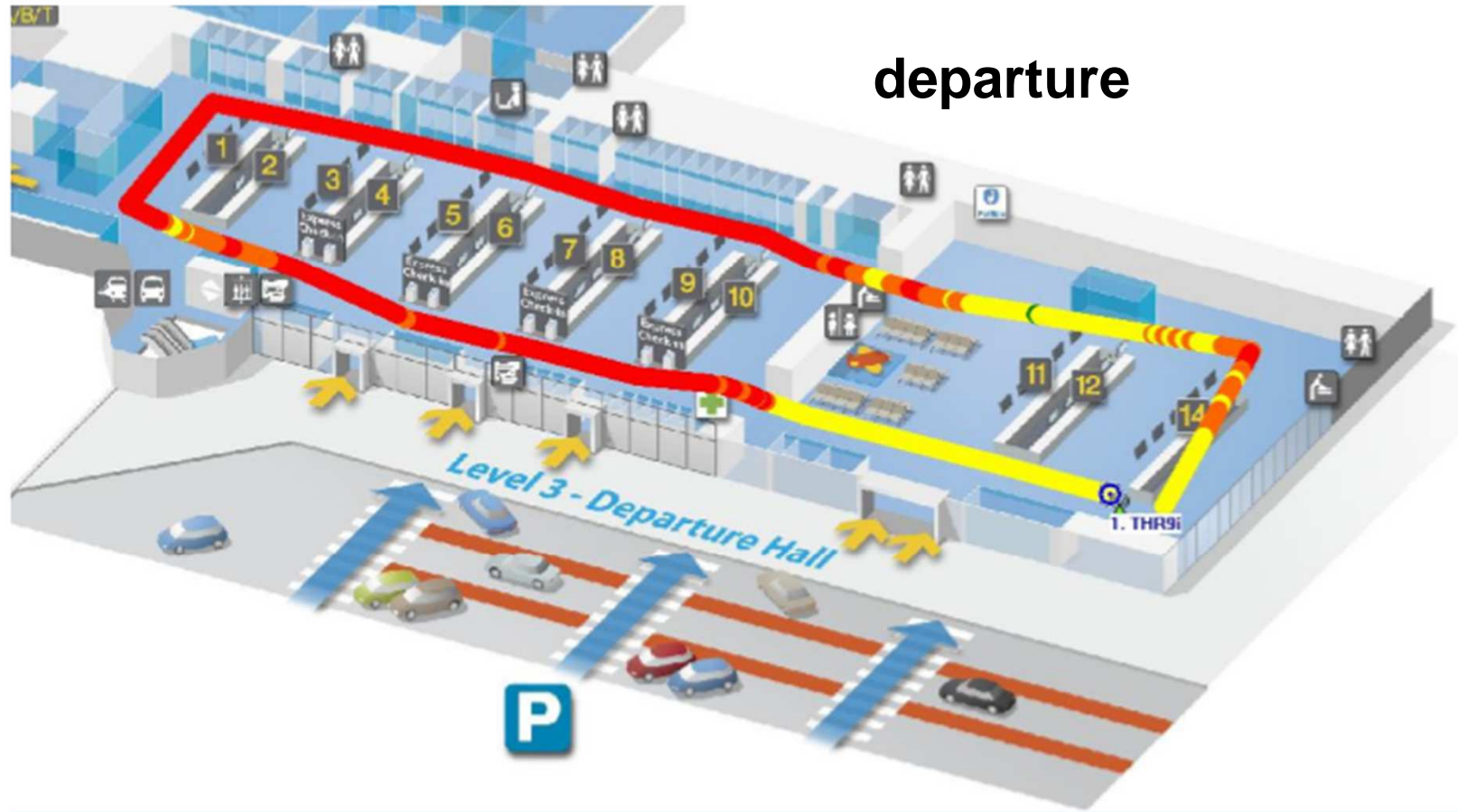
Douanes:       5

FOD VHD:      5

Gemeente Wemmel:          3

# Radio couverage outdoor
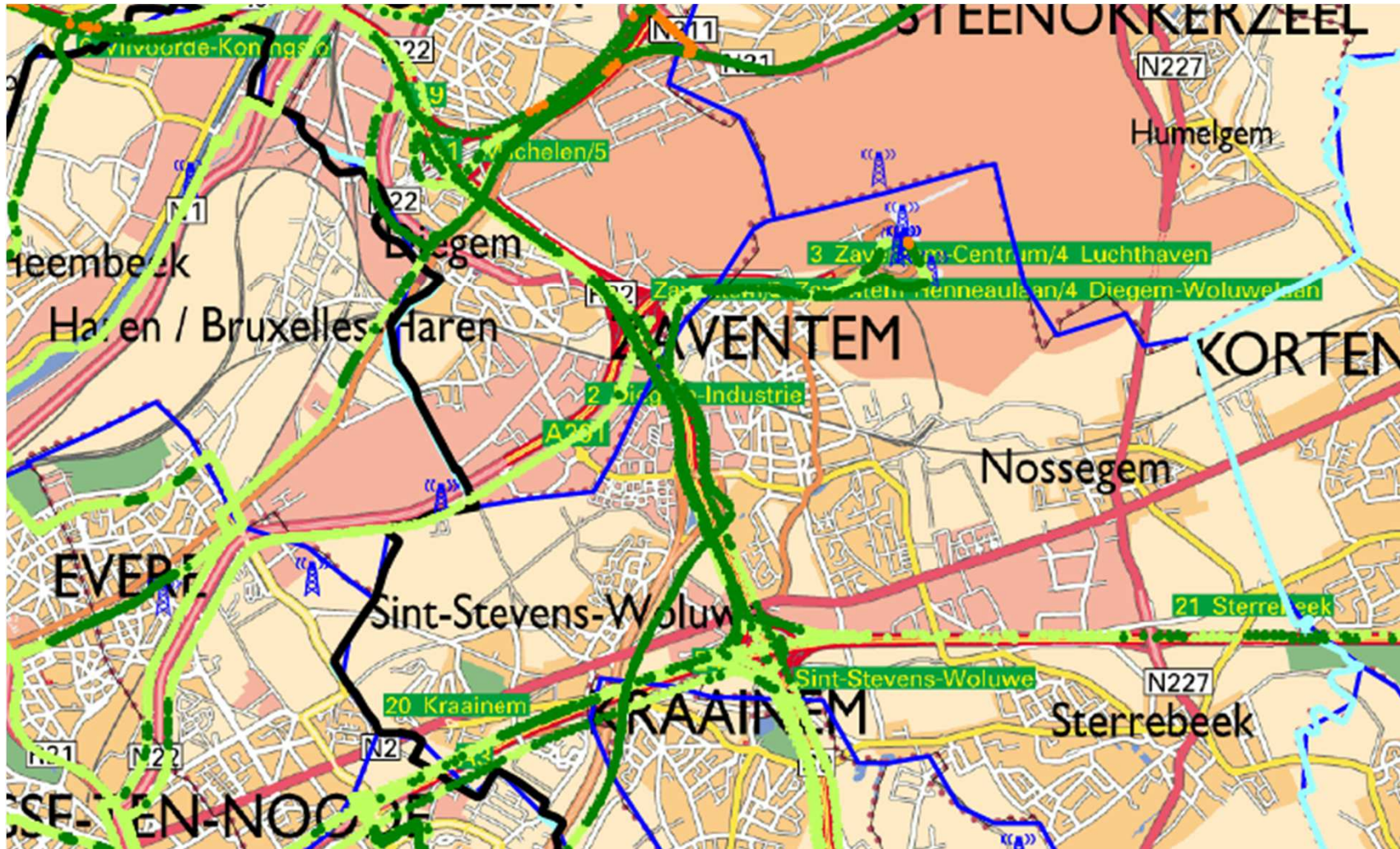
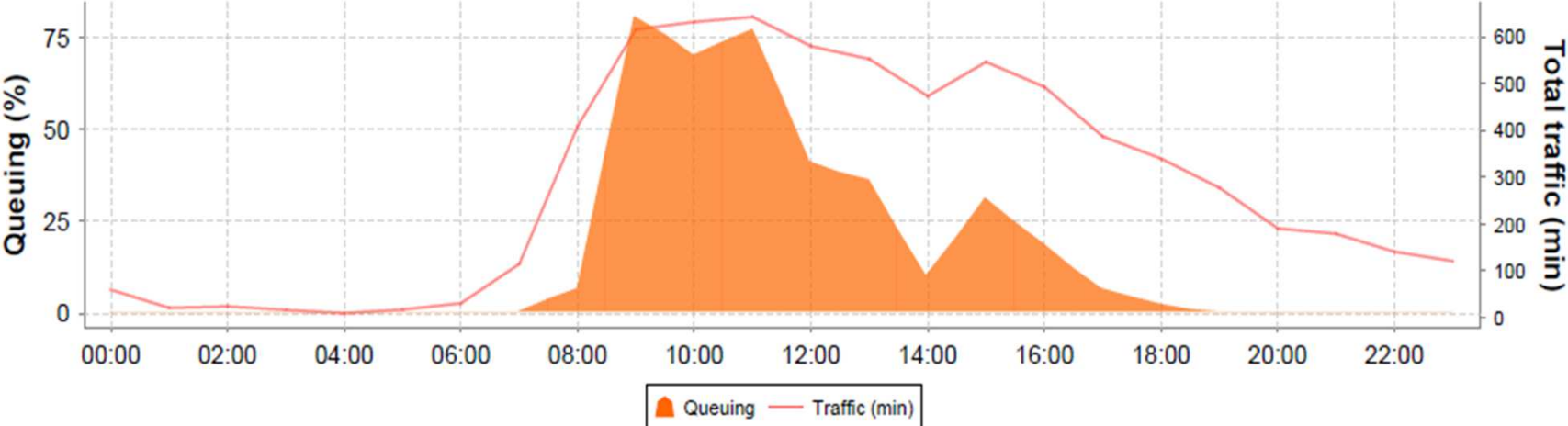# Area couverage base stations

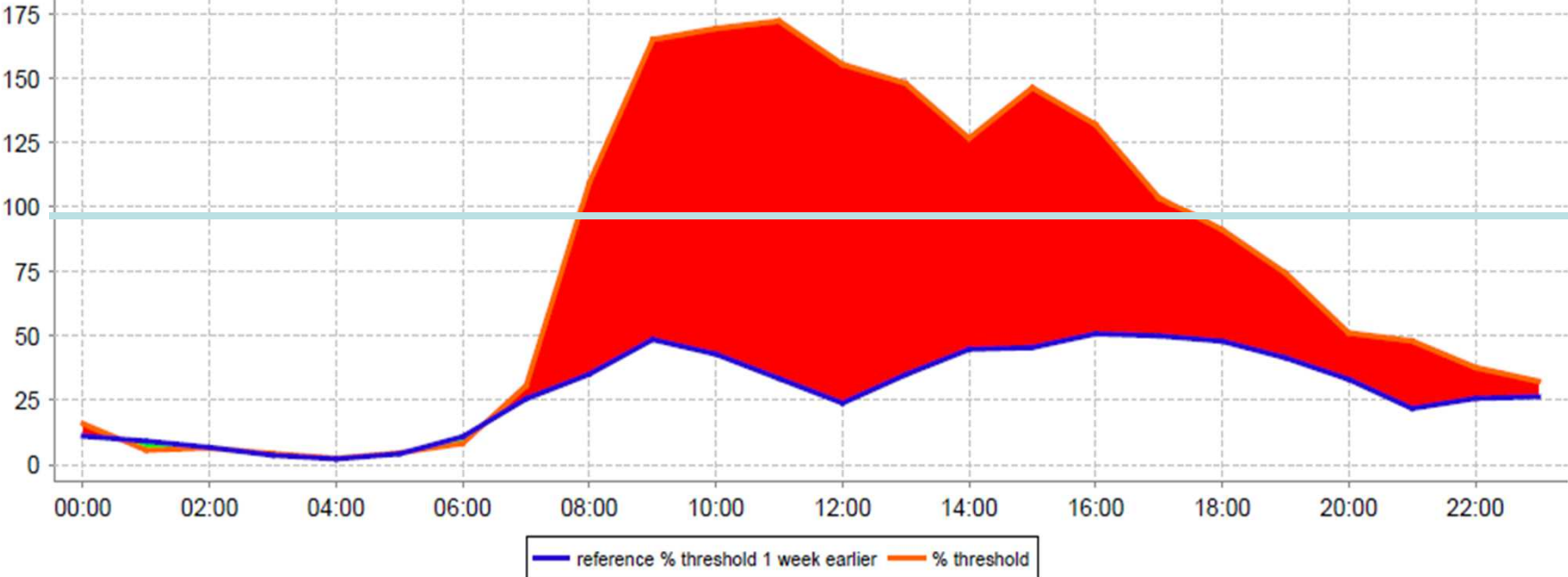# Couverage indoor

**departure**
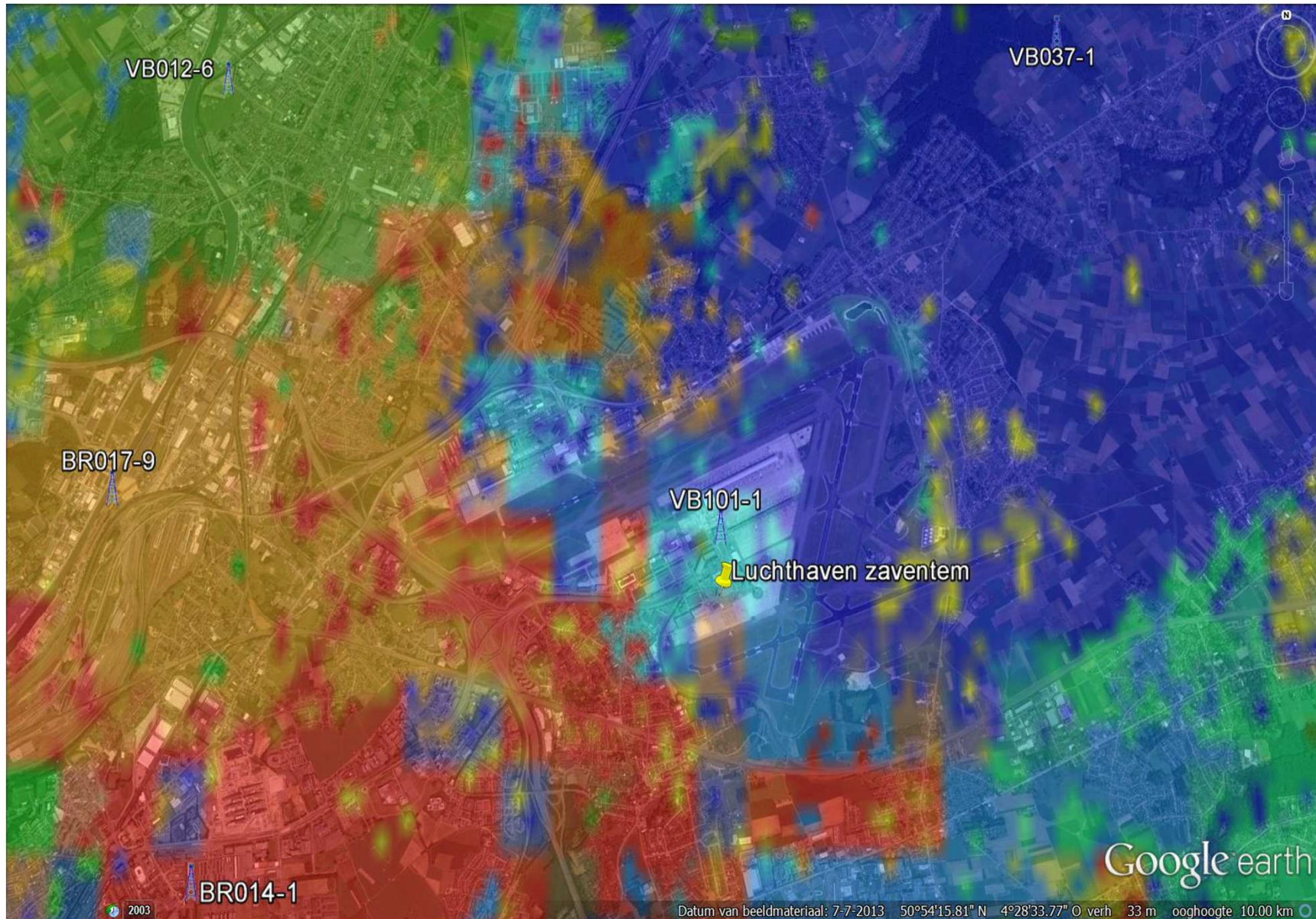
# Occupation base stations

## Traffic (min) per hour for VB012



* 7

Queuing  — Traffic (min)

## Traffic in % from threshold for VB012



— reference % threshold 1 week earlier  — % threshold

# Bombing in the Brussels subway Maelbeek





Around 9:11 pm, just over an hour after the attacks at Brussels Airport, exploded under the european city a bomb in the middle of the three sets of a subway train STIB. This subway train had left a few seconds earlier from "Maelbeek" Metro Station, in the direction of the metro station "Arts-Loi".

It turned out to be a suicide attack perpetrated by the Belgian Khalid El Bakraoui, the brother of the person who committed a suicide attack on the airport. Twenty-one people (including the author) were killed and more than a hundred people were injured, of whom seventeen seriously.

From the stop at Subway "Maelbeek" the smoke came partly out of the subway station "Arts-Loi", so the rescue teams assumed that there had been an attack in this other stop.

| site | Place | max trafic (min) | % trafiek | % queuing | | # ttrx |
|------|-------|------------------|-----------|-----------|---|--------|
| BR001 | Schaarbeek | 615 | **107%** | 1,54 | | 4 |
| BR002 | Forest | 912 | 92% | 0,15 | | 6 |
| BR003 | Koekelberg | 883 | **113%** | 13,37 | | 5 |
| BR004 | Molenbeek Saint jean | 815 | **142%** | 43,57 | | 4 |
| BR005 | Schaarbeek | 534 | 93% | 0,87 | | 4 |
| BR006 | Anderlecht | 263 | 70% | 0,12 | | 3 |
| BR007 | Schaarbeek | 1083 | **140%** | 58,33 | | 5 |
| BR008 | Anderlecht | 390 | 68% | 0 | | 4 |
| BR009 | Justitiepaleis | 959 | **123%** | 19,71 | | 5 |
| BR010 | FOD binnenlandse zaken | 1145 | **147%** | 97,00 | | 5 |
| BR011 | Jette | 560 | 98% | 1,45 | | 4 |
| BR012 | Elsene | 1156 | **116%** | 17,46 | | 6 |
| BR013 | Etterbeek | 778 | **136%** | 28,63 | | 4 |
| BR014 | Evere | 876 | **153%** | 77,82 | | 4 |
| BR015 | Anderlecht | 520 | **139%** | 20,34 | | 3 |
| BR016 | Saint-Gilles | 708 | 91% | 0,15 | | 5 |
| BR017 | Neder-over-Heembeek | 753 | **132%** | 21,95 | | 4 |
| BR018 | Brussel – Expo | 696 | **122%** | 12,74 | | 4 |
| BR019 | Port de Bruxelles | 675 | **118%** | 16,85 | | 4 |
| BR020 | Woluwe Saint Lambert | 422 | 74% | 0 | | 4 |
| BR022 | Auderghem | 393 | 69% | 0 | | 4 |
| BR023 | Sint Jans Molenbeek | 726 | **127%** | 33,31 | | 4 |
| BR101 | **Kunst/Wet** | **239** | **126%** | **27,61** | | **2** |
| BR111 | Zuidstation | 159 | 83% | 0,15 | | 2 |
| BR121 | N-S Centraal | 144 | 76% | 0,23 | | 2 |
| BR113 | Delta | 103 | 55% | 0 | | 2 |

| Gssi | Number of groupcalls | Mnemonic |
|---|---|---|
| 732070 | 1063 | Intervention |
| 362215 | 855 | SPC METRO |
| 421199 | 742 | POLBRU INT |
| 421349 | 716 | B_OUEST INT |
| 632111 | 697 | BRU Z1 01 |
| 421499 | 640 | BRUMI INT |
| 421947 | 603 | BRUNO MO 1 |
| 364204 | 565 | CIC BRU Sp30 |
| 421799 | 540 | MONTY INT |
| 314291 | 520 | BRUNAT TRAF |
| 582280 | 518 | BXL_AllDiv |
| 314200 | 455 | BRUNAT INT |
| 421949 | 451 | BRUNO INT |
| 312291 | 450 | SP NAT 291 |
| 341205 | 447 | DR/OA 1 |
| 421649 | 444 | MARLOW INT |
| 362222 | 443 | SPC BRU |
| 316034 | 438 | GIS P35 |
| 752000 | 436 | VUB SECURITY |
| 532210 | 430 | VIP 10 |
| 601100 | 422 | BRU KT/RP 1 |

used callgroups
Of the 578 groups used are 20 multidisciplinary, on the left the overview of the multidisciplinary groups with the number of calls. A total of 135 interviews in multidisciplinary groups happened, this is only 0.4% of the total number of group discussions on the masts in Brussels and surroundings.

# Individual calls

| Date | Number of individual calls | Total duration of the calls | Number of emergency calls |
|---|---|---|---|
| 22/03/2016 | 1.084 | 239 min | 47 |
| | | | |

Full duplex conversation or type of call:

Choosing in the directory of correspondent and press the green handset. The further procedure is analogous to a standard call as a cell phone.
This type of conversation should be avoided as much as possible (very taxing on the network under the same mast).

# Individual calls (2)

| USERNAME | Aantal |
|---|---|
| ZP Bruxelles Capitale XL | 145 |
| Police Federale - DGA/LPA BRUNAT 5751 | 125 |
| Police Federale - DGA/SPC CENTRE 5735 | 90 |
| Police Federale - DGJ/PJF DIRJUD BRUXELLES 5104 | 70 |
| Fluxys Belgium NV | 68 |
| MIVB - METRO | 61 |
| EANDIS | 49 |
| MIVB - SECURITY | 45 |
| Defense DGMR C&I O/D/R | 42 |
| Police Federale - DGJ/PJF DIRJUD ANTWERPEN 5101 | 25 |
| Port de Bruxelles | 24 |
| Brandweer Brussel | 21 |
| Astrid Users | 20 |
| FOD Financiën Douane en Accijnzen | 20 |
| ZP Midi | 17 |

Of the 1084 attempts at individual conversations are started 473 (43%)
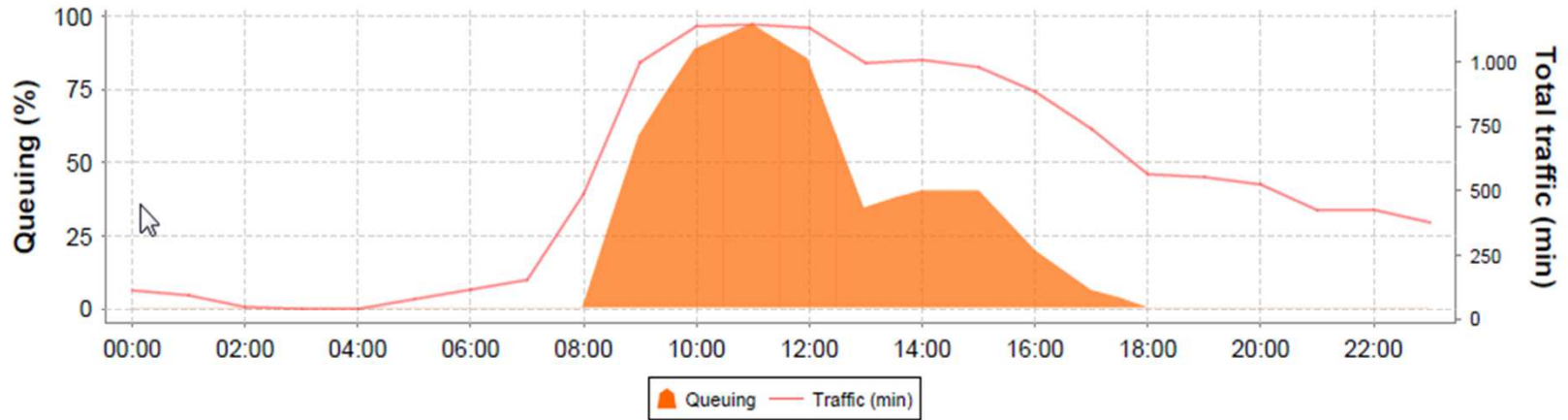
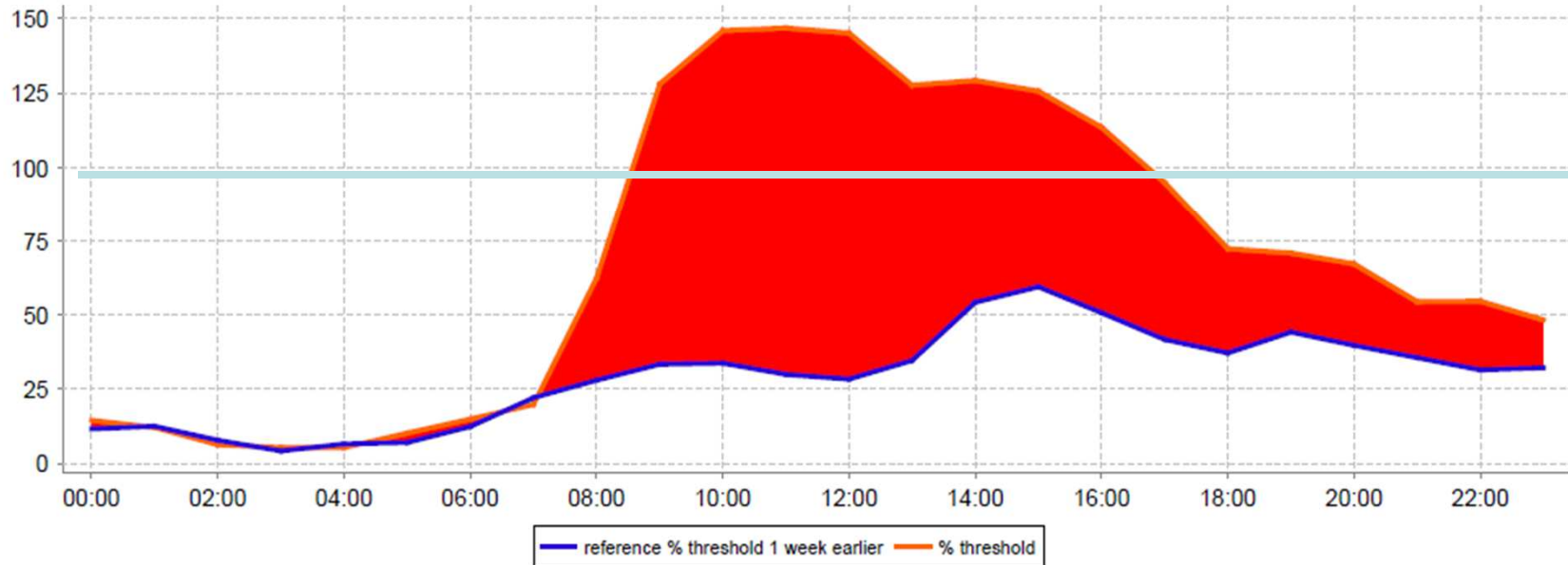# Outdoor Couverage radio

# Couverage areas Antennas
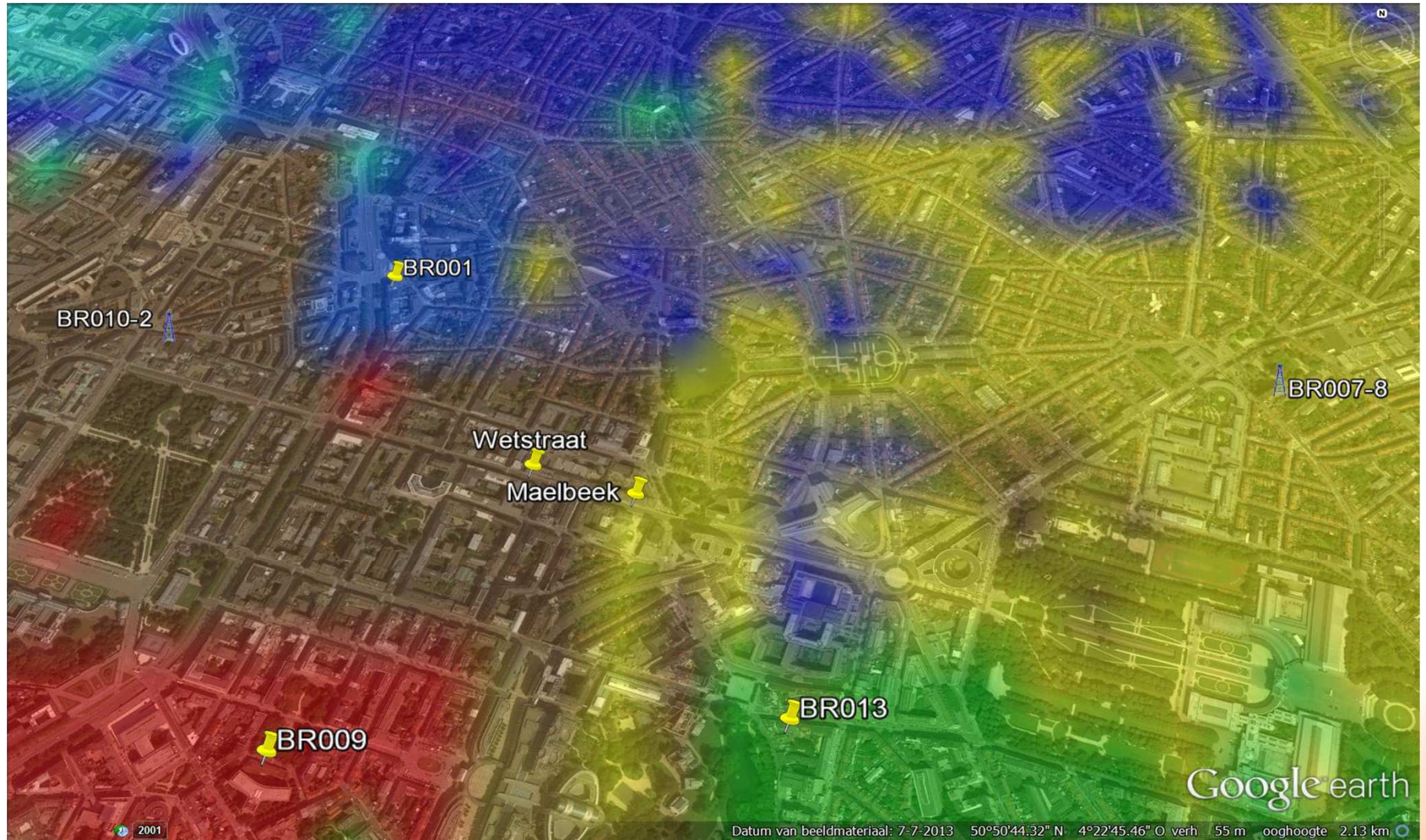
# Charge on base station

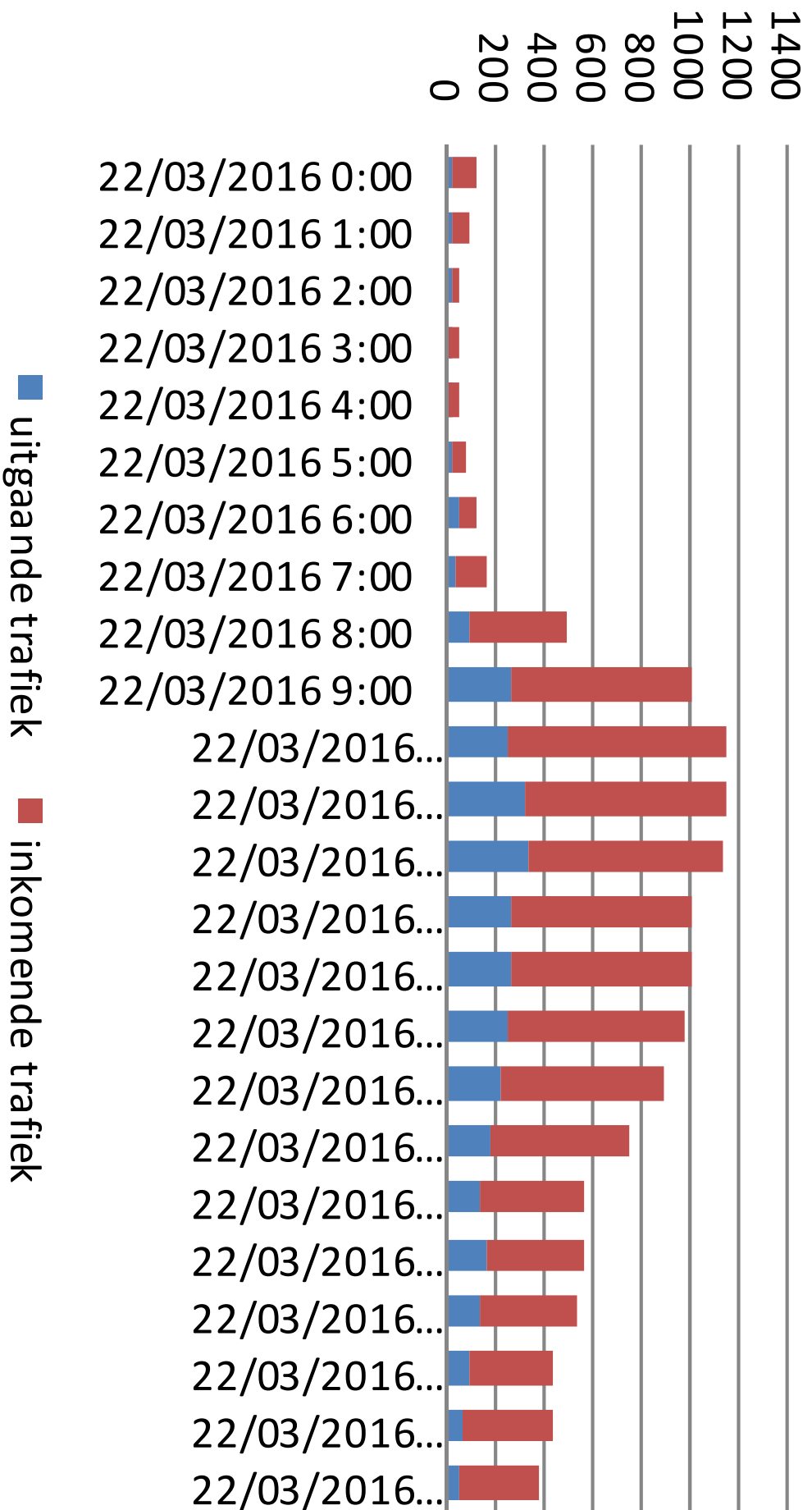**Central Brussels**



Traffic (min) per hour for BR010



Traffic in % from threshold for BR010

Radio trafic on BR010 (min)

Legend:
- uitgaande trafiek
- inkomende trafiek

X-axis: 0, 200, 400, 600, 800, 1000, 1200, 1400

Categories:
- 22/03/2016 0:00
- 22/03/2016 1:00
- 22/03/2016 2:00
- 22/03/2016 3:00
- 22/03/2016 4:00
- 22/03/2016 5:00
- 22/03/2016 6:00
- 22/03/2016 7:00
- 22/03/2016 8:00
- 22/03/2016 9:00
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…
- 22/03/2016…

# Comparison traffic

| Date | Number of minutes occupation |
|---|---|
| 22/3/20156 | 193.662 |
| 15/3/2016 | 83.730 |

# MTU: mobile transmission unit



One for all Belgium

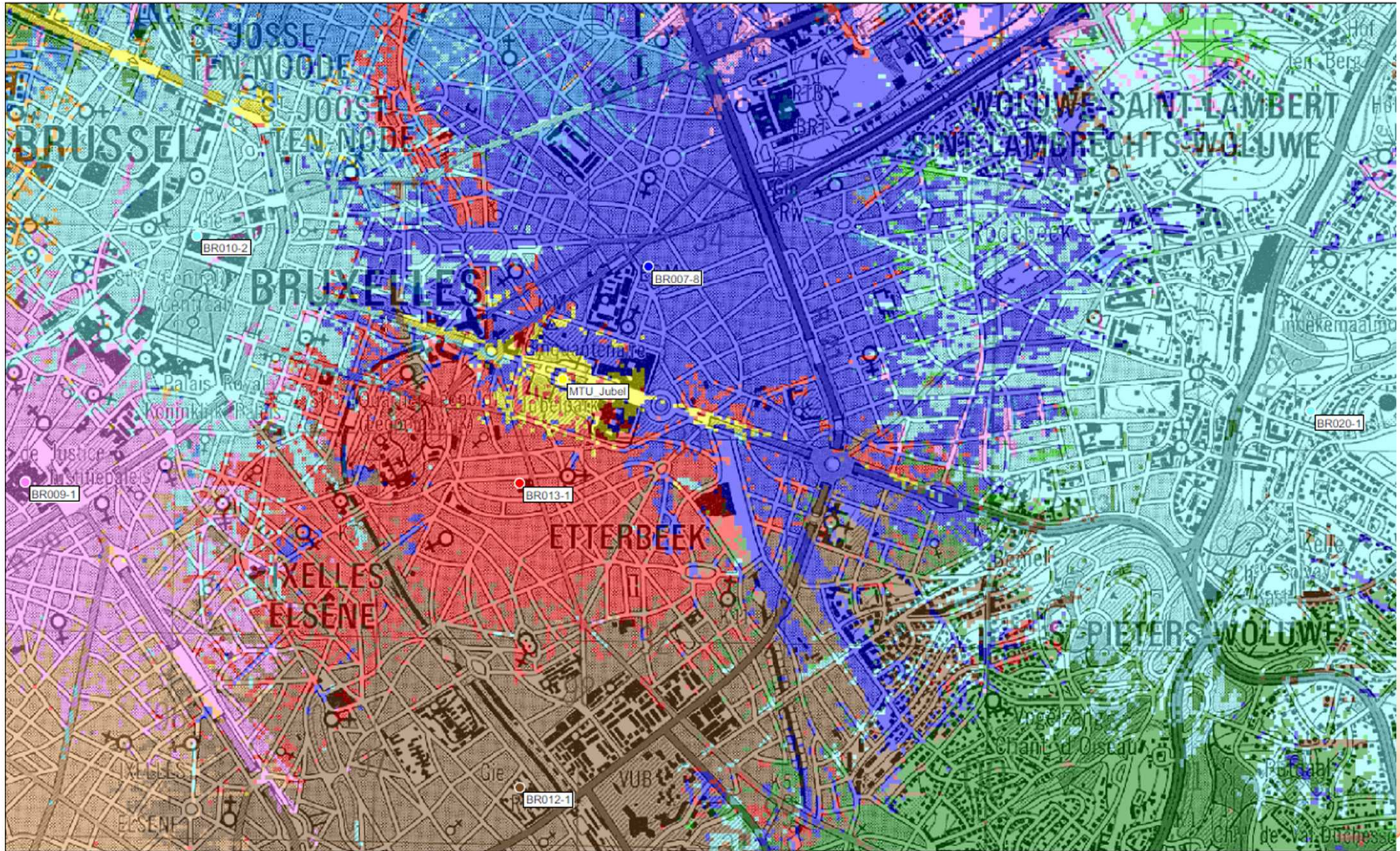Has to be integrated in the radio network with an link on a existing antenna

2 houres installation on site

Decission activation federal crise cente

Installation MTU "Jubelpark" at 14u15

# Couverage MTU

# Groupcalls

| Datum | Aantal groepsgesprekken | Totale duur van de groepsgesprekken (min) | Aantal gebruikte groepen |
|---|---|---|---|
| 22/03/2016 | 35.153 | 21.142 min | 578 |
| | | | |

## Rate of success

| TERMINATION REASON | AMOUNT |
|---|---|
| Normal release | 26.727 |
| An unsuccessful call attempt e.g. no rights or a wrong number | 69 |
| Abnormal termination of a connected call, for example handover failed, resources failed, radio contact lost | 8.357 |

DR i

Poli

- Average of 34 members in a callgroup

- 579 groups in use

- 19.686 groupmembers

- 4.5 groups  on one radio in use

- Polfed:          162
  - SP NAT          59
- ZP:               85
- SI:               44
- FOD SP:           38
- Défense:          35
- Douanes:          26

**Calls**

- 1084 individual calls

- 35153 groupcalls

**Radios**

| | | |
|---|---|---|
| • | Police locale: | 2038 |
| • | Polfed: | 881 |
| • | MIVB: | 260 |
| • | SIAMU: | 139 |
| • | Autres SI | 105 |
| • | FOD SP: | 168 |
| • | Croix-Rouge | 123 |
| • | Défense: | 103 |
| • | VSSE: | 60 |
| • | Securitas: | 39 |
| • | Utilities: | 30 |
| • | PC et DGSC: | 29 |

4.305 radios

DRi

Polic

# Comparison different events Brussels

| | Attentats | G7 | Obama | Buizingen | 21 juillet |
|---|---|---|---|---|---|
| appels de groupe | 35153 | 18916 | 15381 | 7819 | 5504 |
| groupes | 578 | 425 | 343 | 75 | 168 |
| radios | 4305 | 2881 | 2900 | 283 | 938 |

| Total sur BR 10 uniquement | | | |
|---|---|---|---|
| | Attentats | Obama | |
| #appels de groupe | 6379 | 4299 | +48% |
| #radios | 1161 | 932 | +24% |
| #groupes | 210 | 154 | +36% |

DR i

Poli

# Conclusions

## 3 MAIN AXES

Technical

Everything is crosslinked and each axis must be optimised to achieve operational excellence

Procedures
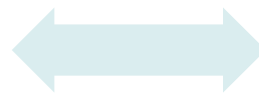
Operational

# Technical measures

1. More capacity on Base Stations

2. Second MTU and satellite connexion

3. Monitoring realtime Capacity (VIEWCOR)

4. More frequencies

5. Priority goupcalls (6 levels)

6. Blue Light Mobile 4G
   "Closed user group" priority data – phone

7. Smart cameras

**Operational measures**

1. **Communication groups major incidents**

2. **Communication exercices on disasters**

3. **Radioplan** and more formation

4. **No scanning** allowed

5. **No individual calls allowed**

6. **Short messages**

- Maximal in queue list 30

7. **PTT pressed in (to stay in queue)**

8. **Group with ideal around 30 members**

9. **Use of Direct Mode**

# procedural measures

1. **Decision  use MTU by Federal Crise Center**

2. **Member Crise Center at ASTRID**

3. **Capacity monitoring** with operational measures

4. **Disaster plans adapted airport and subway**

5. **Specific Terro measeres**

6. **Communication Center support**

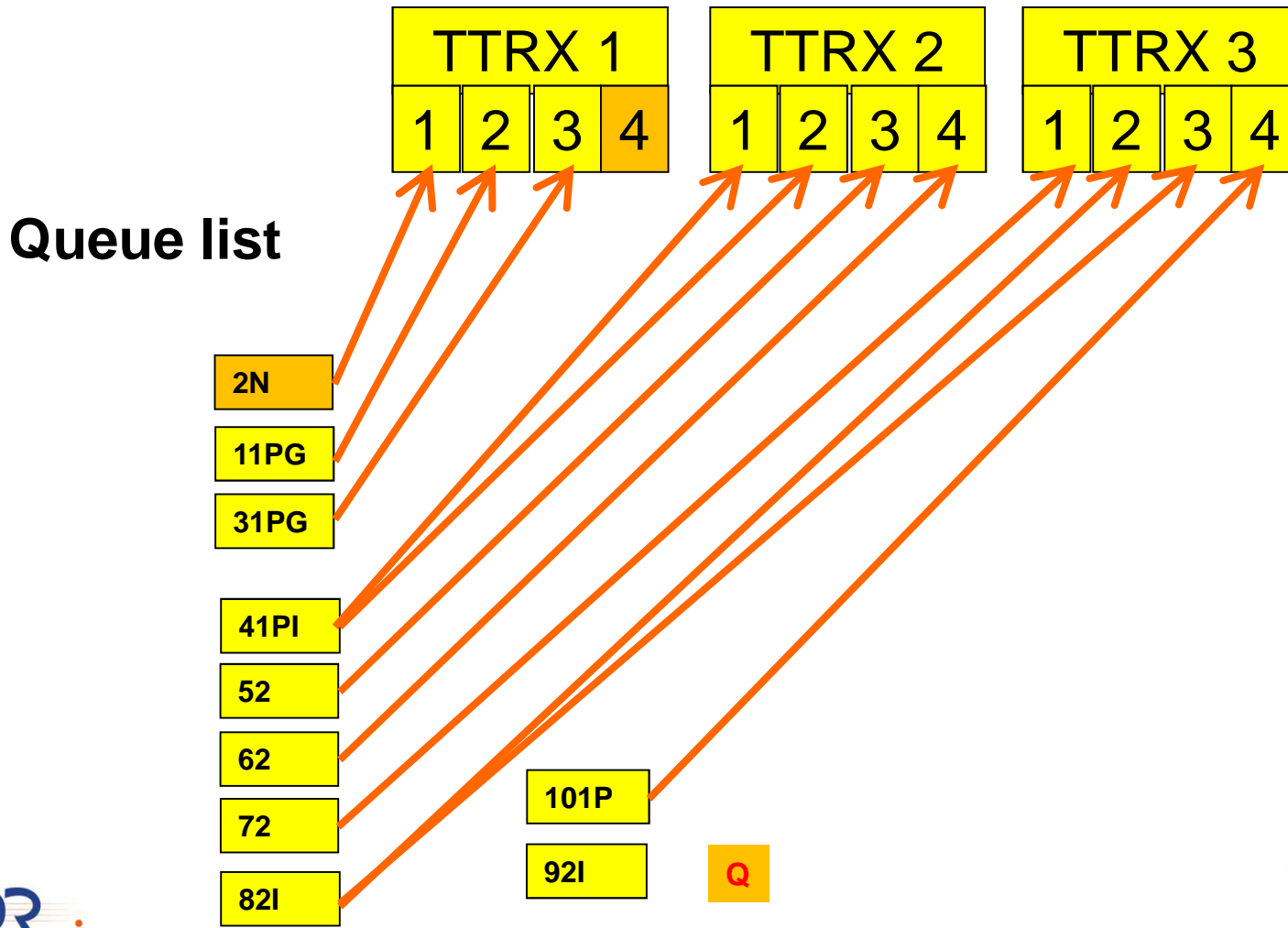# Visual views in the Viewcor and Viewcor Lite solutions

**Viewcor® Lite**

**Main View**

**Channel View**

**Trend View**

**Report View***

**Viewcor®**

AIRBUS
DEFENCE & SPACE

# Queuing

**MCCH** load

The MCCH (Multicast Control Channel) load shows the load on the control channel. Each call and SDS is first treated by the control channel for assigning the time slot. Too much load on the control channel can lead to the blocking of the respective Antenna.
As a guideline is given that the trafic in uplink and downlink may not exceed 70%.

# "Catastrophe" traffic model
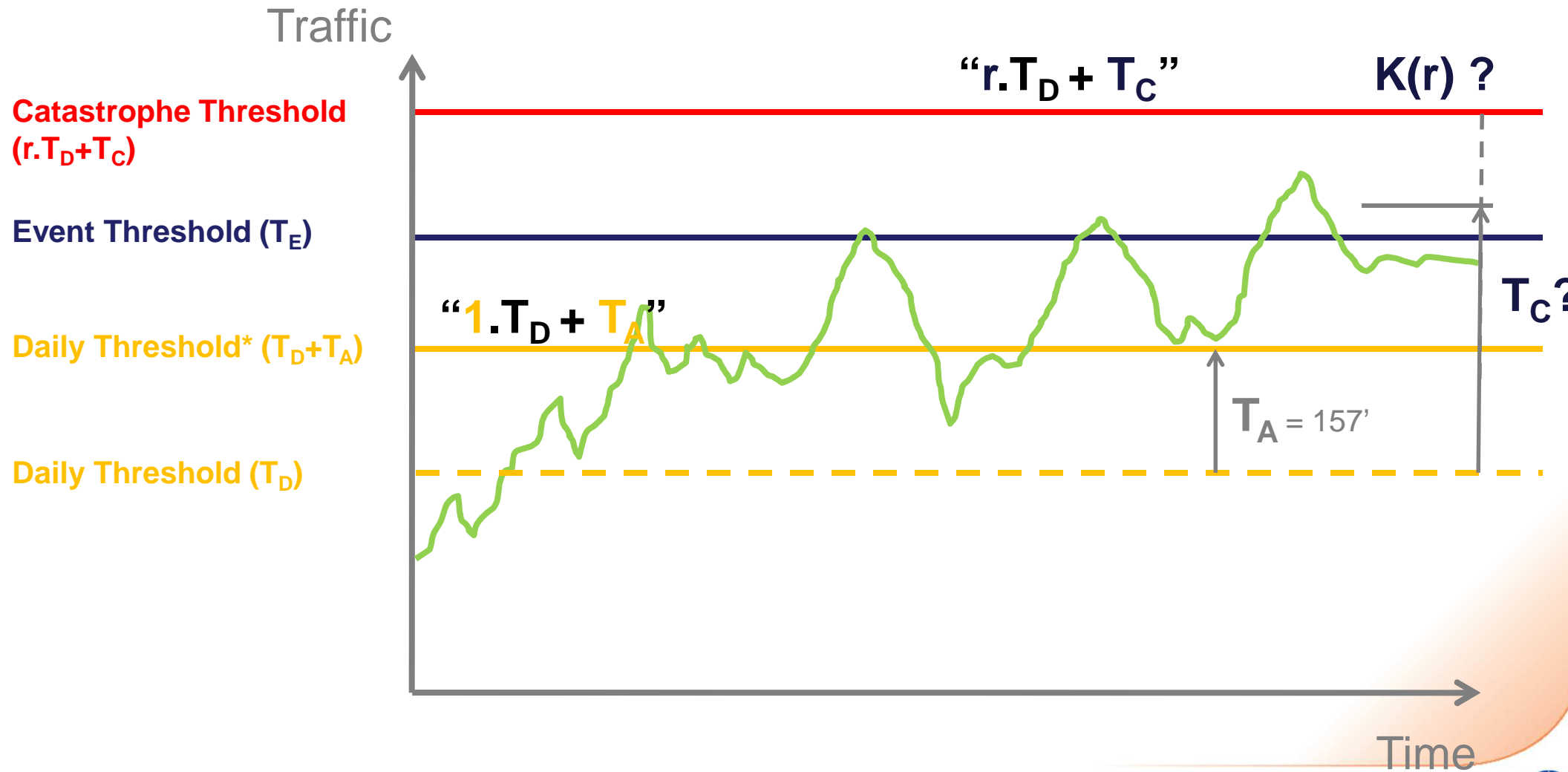
**Beyoncé** heeft een nieuwe foto toegevoegd.
10 uur · 🌐