

entr0py Encore - 003 5G

Project	entr0py Encore
Status	Planning
Contact	metalgamer
Episode Number	003
Subject	5G
Recording Date	2020-04-20
Publish Date	2020-04-22

<html>

```
<script src="https://cdn.podlove.org/web-  
player/5.x/embed.js"></script><script>podlovePlayer('#podloveplayer',  
{ "audio": [{ "mimeType": "audio/ogg", "size": "178183979", "title": "OGG VBR 320  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-320.ogg"}, { "mimeType": "audio/ogg", "size": "148964850", "title": "OGG VBR 256  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-256.ogg"}, { "mimeType": "audio/ogg", "size": "108213771", "title": "OGG VBR 192  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-192.ogg"}, { "mimeType": "audio/ogg", "size": "72175725", "title": "OGG VBR 128  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-128.ogg"}, { "mimeType": "audio/ogg", "size": "50635042", "title": "OGG VBR 96  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-96.ogg"}, { "mimeType": "audio/ogg", "size": "126469627", "title": "OGG VBR 320  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-320.ogg"}, { "mimeType": "audio/ogg", "size": "126469627", "title": "OGG VBR 256  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-256.ogg"}, { "mimeType": "audio/ogg", "size": "117016377", "title": "OGG VBR 192  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-192.ogg"}, { "mimeType": "audio/ogg", "size": "83145332", "title": "OGG VBR 128  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-128.ogg"}, { "mimeType": "audio/ogg", "size": "62581054", "title": "OGG VBR 96  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-96.ogg"}, { "mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 320  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-320.mp3"}, { "mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 256  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-256.mp3"}, { "mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 192  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-192.mp3"}, { "mimeType": "audio/mpeg", "size": "70281944", "title": "MP3 VBR 128  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-128.mp3"}, { "mimeType": "audio/mpeg", "size": "44504357", "title": "MP3 VBR 96  
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-  
vbr-96.mp3"}, { "mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 320  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-320.mp3"}, { "mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 256  
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-  
vbr-256.mp3"}, { "mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 192
```

Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-192.mp3", {"mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 128
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-128.mp3", {"mimeType": "audio/mpeg", "size": "60018390", "title": "MP3 VBR 96
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-96.mp3", {"mimeType": "audio/mpeg", "size": "164456821", "title": "MP3 CBR 320
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-320.mp3", {"mimeType": "audio/mpeg", "size": "131582450", "title": "MP3 CBR 256
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-256.mp3", {"mimeType": "audio/mpeg", "size": "98708079", "title": "MP3 CBR 192
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-192.mp3", {"mimeType": "audio/mpeg", "size": "65833709", "title": "MP3 CBR 128
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-128.mp3", {"mimeType": "audio/mpeg", "size": "49396905", "title": "MP3 CBR 96
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-96.mp3", {"mimeType": "audio/mpeg", "size": "164456821", "title": "MP3 CBR 320
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-320.mp3", {"mimeType": "audio/mpeg", "size": "131582450", "title": "MP3 CBR 256
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-256.mp3", {"mimeType": "audio/mpeg", "size": "98708079", "title": "MP3 CBR 192
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-192.mp3", {"mimeType": "audio/mpeg", "size": "65833709", "title": "MP3 CBR 128
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-128.mp3", {"mimeType": "audio/mpeg", "size": "49396524", "title": "MP3 CBR 96
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-96.mp3", {"mimeType": "audio/flac", "size": "256236340", "title": "FLAC
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo.flac", {"mimeType": "audio/flac", "size": "203709649", "title": "FLAC
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono.flac"}], "duration": "1:8:29.228", "files": [{"mimeType": "audio/opus", "size": "134623083", "title": "O
PUS VBR 256
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-256.opus", {"mimeType": "audio/opus", "size": "95215336", "title": "OPUS VBR 192
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-192.opus", {"mimeType": "audio/opus", "size": "61325862", "title": "OPUS VBR 128
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-128.opus", {"mimeType": "audio/opus", "size": "45991465", "title": "OPUS VBR 96
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-96.opus", {"mimeType": "audio/opus", "size": "33978526", "title": "OPUS VBR 64
Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-64.opus", {"mimeType": "audio/opus", "size": "149101178", "title": "OPUS VBR 256
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-256.opus", {"mimeType": "audio/opus", "size": "115999996", "title": "OPUS VBR 192
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-192.opus", {"mimeType": "audio/opus", "size": "77640275", "title": "OPUS VBR 128
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-128.opus", {"mimeType": "audio/opus", "size": "57856330", "title": "OPUS VBR 96
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-96.opus", {"mimeType": "audio/opus", "size": "37948920", "title": "OPUS VBR 64
Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-64.opus"}

vbr-64.opus"}, {"mimeType": "audio/ogg", "size": "178183979", "title": "OGG VBR 320 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-320.ogg"}, {"mimeType": "audio/ogg", "size": "148964850", "title": "OGG VBR 256 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-256.ogg"}, {"mimeType": "audio/ogg", "size": "108213771", "title": "OGG VBR 192 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-192.ogg"}, {"mimeType": "audio/ogg", "size": "72175725", "title": "OGG VBR 128 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-128.ogg"}, {"mimeType": "audio/ogg", "size": "50635042", "title": "OGG VBR 96 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-96.ogg"}, {"mimeType": "audio/ogg", "size": "126469627", "title": "OGG VBR 320 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-320.ogg"}, {"mimeType": "audio/ogg", "size": "126469627", "title": "OGG VBR 256 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-256.ogg"}, {"mimeType": "audio/ogg", "size": "117016377", "title": "OGG VBR 192 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-192.ogg"}, {"mimeType": "audio/ogg", "size": "83145332", "title": "OGG VBR 128 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-128.ogg"}, {"mimeType": "audio/ogg", "size": "62581054", "title": "OGG VBR 96 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-96.ogg"}, {"mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 320 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-320.mp3"}, {"mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 256 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-256.mp3"}, {"mimeType": "audio/mpeg", "size": "112575776", "title": "MP3 VBR 192 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-192.mp3"}, {"mimeType": "audio/mpeg", "size": "70281944", "title": "MP3 VBR 128 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-128.mp3"}, {"mimeType": "audio/mpeg", "size": "44504357", "title": "MP3 VBR 96 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-vbr-96.mp3"}, {"mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 320 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-320.mp3"}, {"mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 256 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-256.mp3"}, {"mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 192 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-192.mp3"}, {"mimeType": "audio/mpeg", "size": "79148380", "title": "MP3 VBR 128 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-128.mp3"}, {"mimeType": "audio/mpeg", "size": "60018390", "title": "MP3 VBR 96 Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-vbr-96.mp3"}, {"mimeType": "audio/mpeg", "size": "164456821", "title": "MP3 CBR 320 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-320.mp3"}, {"mimeType": "audio/mpeg", "size": "131582450", "title": "MP3 CBR 256 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-256.mp3"}, {"mimeType": "audio/mpeg", "size": "98708079", "title": "MP3 CBR 192 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-192.mp3"}, {"mimeType": "audio/mpeg", "size": "65833709", "title": "MP3 CBR 128 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-128.mp3"}, {"mimeType": "audio/mpeg", "size": "49396905", "title": "MP3 CBR 96 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-96.mp3"}, {"mimeType": "audio/mpeg", "size": "164456821", "title": "MP3 CBR 320 Stereo", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-stereo-cbr-320.mp3"}]

Mono", "url": "https://download.c3l.lu/dlbase/entr0py_enc0re/003-5G/003-5G-mono-cbr-320.mp3", {"mimeType": "audio/mpeg", "size": "131582450", "title": "MP3 CBR 256"}, {"mimeType": "audio/mpeg", "size": "98708079", "title": "MP3 CBR 192"}, {"mimeType": "audio/mpeg", "size": "65833709", "title": "MP3 CBR 128"}, {"mimeType": "audio/mpeg", "size": "49396524", "title": "MP3 CBR 96"}, {"mimeType": "audio/flac", "size": "256236340", "title": "FLAC"}, {"mimeType": "audio/flac", "size": "203709649", "title": "FLAC"}, {"link": "https://wiki.c3l.lu/doku.php?id=projects:entr0py_encore:003_5g", "poster": "https://projects.c3l.lu/C3L/Artwork/raw/tip/Projects/entr0py_Encore/003-5G/PNG/003-5G.png", "publicationDate": "2020-04-22T00:00:00+00:00", "show": {"link": "<https://wiki.c3l.lu/doku.php?id=projects:entr0py-encore>", "title": "entr0py Encore"}, "title": "003 - 5G", "version": 5}, {"theme": {"tokens": {"brand": "#000000FF", "brandDark": "#000000FF", "brandDarkest": "#000000FF", "brandLightest": "#FFFFFF", "shadeDark": "#807E7C", "shadeBase": "#807E7C", "contrast": "#000", "alt": "#fff"}}, "</script></html>

Overview

1. Introduction
2. 2G, 3G, 4G, 5G - What the heck?
 1. Technical standard bodies
 1. 3GPP
3. Technical Aspects & Differences to 4G
 1. Frequency & Bandwidth
 2. Cell-structure
 3. MIMO
 4. Beamforming
 5. QoS
4. For what use/applications of 5G
 1. IoT
 2. Agriculture
 3. "Normal people"
 4. Bridge to next fiber access
 5. Health
5. Netneutrality
 1. What is net neutrality?
 2. "Social packages" - net neutrality for enterprises
 3. QoS
 4. Two-class network
6. Security aka. Huawei, Cisco. Monopoly's
 1. Built-In espionage & surveillance
7. Health
 1. Wear your alufoil hat
 2. General implications

- 3. Coronavirus
- 8. Future
 - 1. 6G

Sources

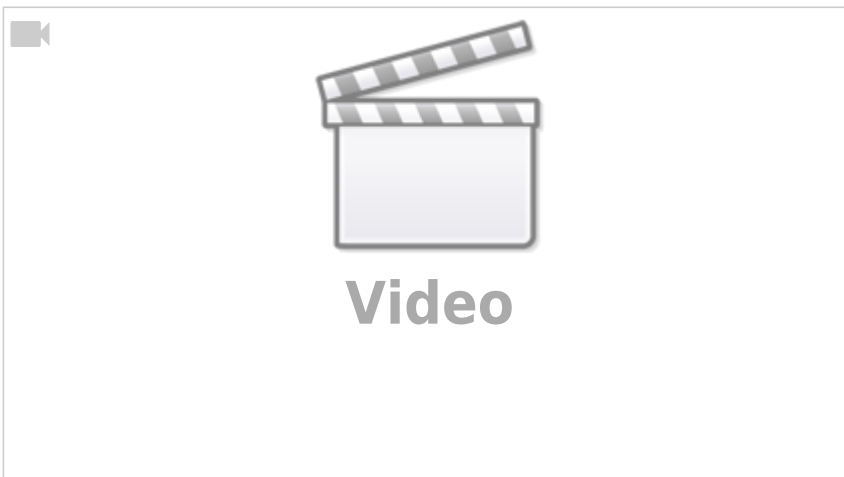
- [YouTube - re:publica 2019 - Thomas Lohninger: Mit 5G wird Milch und Honig fließen](#)
- [Der Standard - 5G: Die Rückkehr der "Strahlenangst"](#)
- [Luxembourg 5G Strategy Expert Report](#)
- [media.ccc.de - 36C3 - Der Pfad von 4G zu 5G: Die Luftschnittstelle und das Core im Wandel der Zahlen](#)
- [media.ccc.de - CCCamp2019 - Die 5G-Überwachungsstandards: Cops gegen Telekoms im ETSI](#)
- [media.ccc.de - 36C3 - 5G & Net Neutrality: Status of the Net Neutrality Reform in Europe](#)
- [TNO Report - 5G and Net Neutrality: a functional analysis to feed the policy discussion](#)
- [Blog: WirelessMoves](#)
- [CRE.fm 197: IPv6](#)

Files

Type	VBR/CBR	Mono/Stereo	Bitrate	Link	Size
OPUS	VBR	Stereo	256	003-5G-stereo-vbr-256.opus	134.6 MB
			192	003-5G-stereo-vbr-192.opus	95.2 MB
			128	003-5G-stereo-vbr-128.opus	61.3 MB
			96	003-5G-stereo-vbr-96.opus	46.0 MB
			64	003-5G-stereo-vbr-64.opus	34.0 MB
		Mono	256	003-5G-mono-vbr-256.opus	149.1 MB
			192	003-5G-mono-vbr-192.opus	116.0 MB
			128	003-5G-mono-vbr-128.opus	77.6 MB
			96	003-5G-mono-vbr-96.opus	57.9 MB
			64	003-5G-mono-vbr-64.opus	37.9 MB
OGG	VBR	Stereo	320	003-5G-stereo-vbr-320.ogg	178.2 MB
			256	003-5G-stereo-vbr-256.ogg	149.0 MB
			192	003-5G-stereo-vbr-192.ogg	108.2 MB
			128	003-5G-stereo-vbr-128.ogg	72.2 MB
			96	003-5G-stereo-vbr-96.ogg	50.6 MB
		Mono	320	003-5G-mono-vbr-320.ogg	126.5 MB
			256	003-5G-mono-vbr-256.ogg	126.5 MB
			192	003-5G-mono-vbr-192.ogg	117.0 MB
			128	003-5G-mono-vbr-128.ogg	83.1 MB
			96	003-5G-mono-vbr-96.ogg	62.6 MB

Type	VBR/CBR	Mono/Stereo	Bitrate	Link	Size
MP3	VBR	Stereo	320	003-5G-stereo-vbr-320.mp3	112.6 MB
			256	003-5G-stereo-vbr-256.mp3	112.6 MB
			192	003-5G-stereo-vbr-192.mp3	112.6 MB
			128	003-5G-stereo-vbr-128.mp3	70.3 MB
			96	003-5G-stereo-vbr-96.mp3	44.5 MB
		Mono	320	003-5G-mono-vbr-320.mp3	79.1 MB
			256	003-5G-mono-vbr-256.mp3	79.1 MB
			192	003-5G-mono-vbr-192.mp3	79.1 MB
			128	003-5G-mono-vbr-128.mp3	79.1 MB
			96	003-5G-mono-vbr-96.mp3	60.0 MB
	CBR	Stereo	320	003-5G-stereo-cbr-320.mp3	164.5 MB
			256	003-5G-stereo-cbr-256.mp3	131.6 MB
			192	003-5G-stereo-cbr-192.mp3	98.7 MB
			128	003-5G-stereo-cbr-128.mp3	65.8 MB
			96	003-5G-stereo-cbr-96.mp3	49.4 MB
		Mono	320	003-5G-mono-cbr-320.mp3	164.5 MB
			256	003-5G-mono-cbr-256.mp3	131.6 MB
			192	003-5G-mono-cbr-192.mp3	98.7 MB
			128	003-5G-mono-cbr-128.mp3	65.8 MB
			96	003-5G-mono-cbr-96.mp3	49.4 MB
FLAC	N/A	Stereo	N/A	003-5G-stereo.flac	256.2 MB
		Mono	N/A	003-5G-mono.flac	203.7 MB

[This episode on Archive.org](#)



From:
<https://wiki.c3l.lu/> - **Chaos Computer Club Lëtzebuerg**

Permanent link:
https://wiki.c3l.lu/doku.php?id=projects:entr0py_encore:003_5g&rev=1589231620

Last update: **2020/05/11 23:13**

