



Bullitt Group. Technology innovation



Bullitt. Satellite tech



Cat Phones. Rugged tech



Motorola. Consumer tech

LEADERS IN RUGGED



Founded in 2009, experts in rugged devices



Headquartered in Reading, UK
Offices in China, Taiwan, USA



Approximately 150 staff worldwide



Licensees of major global brands in rugged:



CAT



Multi award-winning products,
Rugged Manufacturer of the Year, 2020, 2021 (MIA)



BULLITT





RELIABILITY & PEACE OF MIND MILLIONS OF LOYAL & ENGAGED CUSTOMERS

THE WORLD'S MOST ADVANCED 
SATELLITE MESSAGING SMARTPHONE

 **Bullitt**



18 BILLION SMS MESSAGES PER DAY
NO US CARRIER COVERS MORE THAN 70% OF US LANDMASS
60M AMERICANS LOSE COVERAGE FOR UP TO 25% PER DAY
22BN HOURS LOST COVERAGE A YEAR
100'S M LOST MESSAGES EVERYDAY



CELLULAR DEAD SPOTS

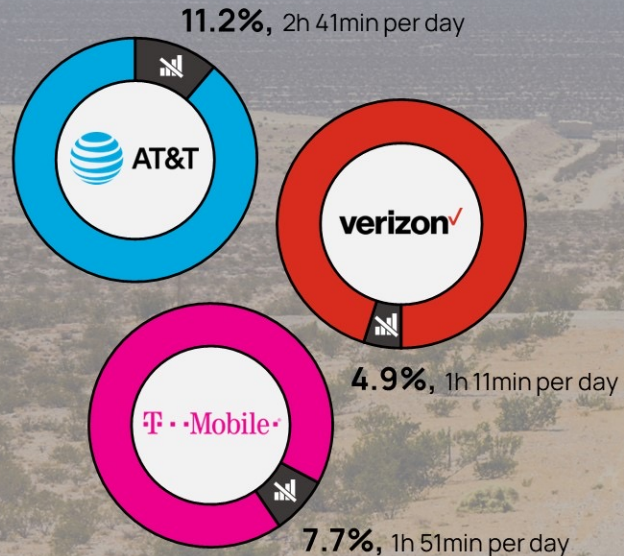
A BIG PROBLEM FOR A BIG MARKET
ESPECIALLY IN RURAL AREAS

Rural areas cover **97%** of the US land area and contain more than **19%** of the population

Average percentage of time 4G-enabled devices with a 4G subscription were **unable to connect** to a 4G network

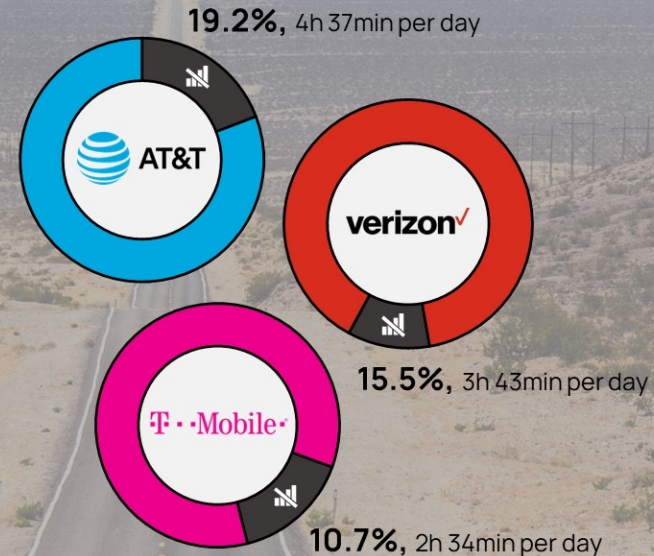
RURAL, FRINGE

Up to 5 miles from an urbanized area, or up to 2.5 miles from an urban cluster



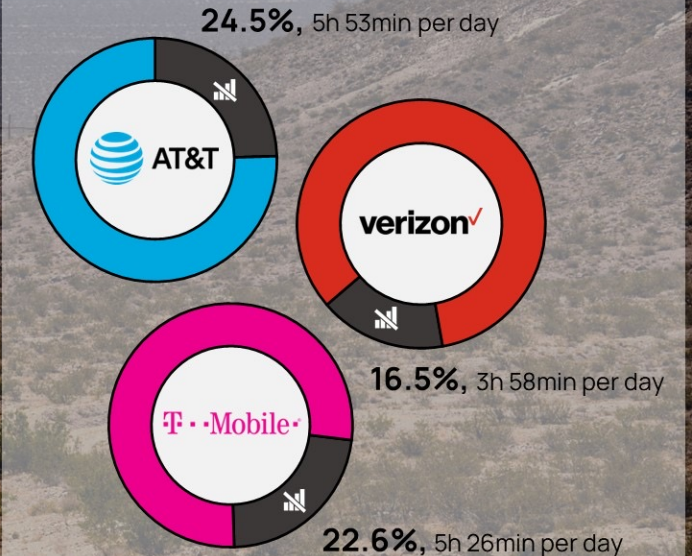
RURAL, DISTANT

Between 5 and 25 miles from an urbanized area, or between 2.5 and 10 miles from an urban cluster



RURAL, REMOTE

More than 25 miles from an urbanized area, or more than 10 miles from an urban cluster



Source: US Census Bureau

Source: OpenSignal - study of 4G availability in rural US locations. Data collected March-June 2019. Rural categorizations based on NCES locale framework. © OpenSignal Limited

TWO-WAY SATELLITE MESSAGING ON A SMARTPHONE TODAY DEMOCRATIZING SATELLITE CONNECTIVITY

PEACE OF MIND

FAMILY & FRIENDS / LONE PARENTS / RURAL LIVING / INDEPENDENT
TRAVELLERS / POLITICAL HOTSPOTS

OVER ONE BILLION PEOPLE WORLDWIDE

BUSINESS CRITICAL

RURAL WORKERS / TRANSPORT / FORESTRY / LOGISTICS / REMOTE TEAMS
/ UTILITIES / CNI

OVER 500 MILLION WORKERS WORLDWIDE

OVER 20 MILLION WORKERS WORLDWIDE

MISSION CRITICAL

EMERGENCY WORKERS / FIRST RESPONDERS / POLICE / FIREFIGHTERS /
CHARITY & NGO TEAMS

OVER 750 MILLION HOBBYISTS WORLDWIDE

HOBBYIST

ACTIVE LIFESTYLE / HIKERS & WALKERS / SKIERS / CYCLISTS / BOATERS /
HUNTERS / FISHERS

BULLITT SATELLITE CONNECT



BULLITT SATELLITE MESSENGER



NO IP COVERAGE



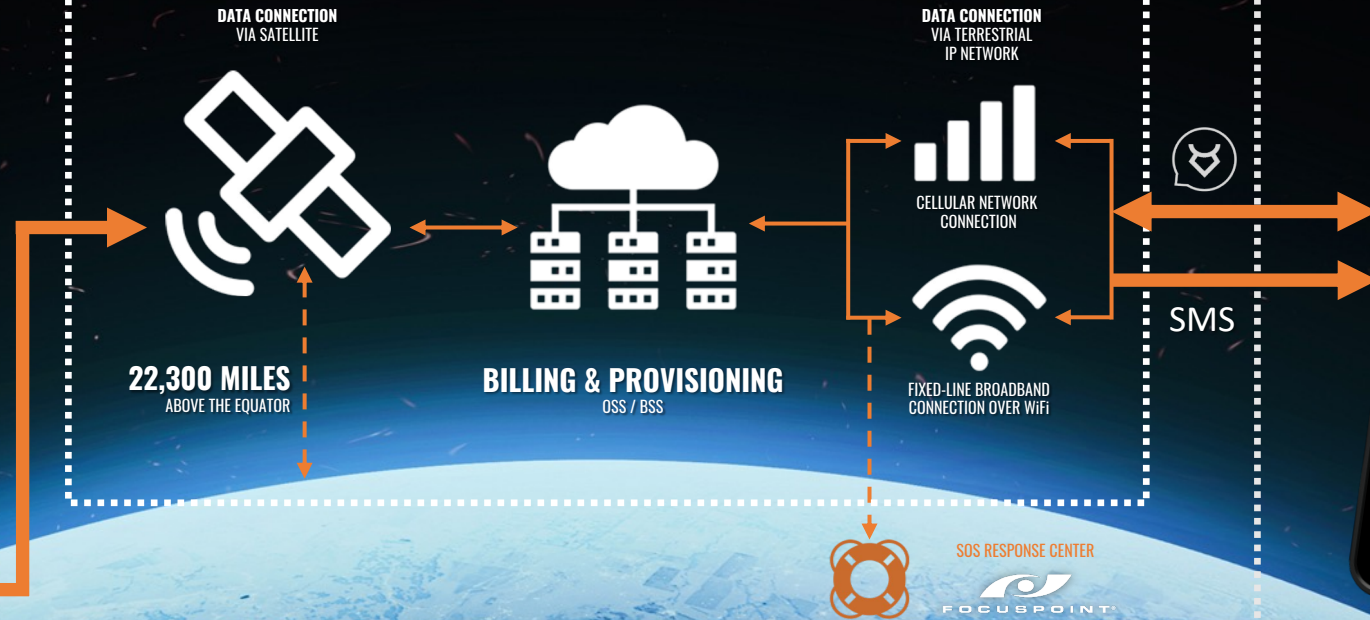
android



BULLITT SATELLITE CONNECT



Bullitt SATELLITE PLATFORM COMPONENTS



BULLITT SATELLITE MESSENGER



IP COVERAGE



iOS

android

LICENSABLE SERVICE COMPONENTS

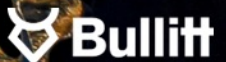


Bullitt
Satellite Messenger

CELLULAR INFILL
REGARDLESS OF TERRAIN & TOPOGRAPHY

PEACE OF MIND
ALWAYS CONNECTED AND REACHABLE
ASSISTANCE WHEN YOU NEED IT

RELIABLE COMMUNICATIONS
DEMOCRATISED
DISRUPTIVELY PRICED

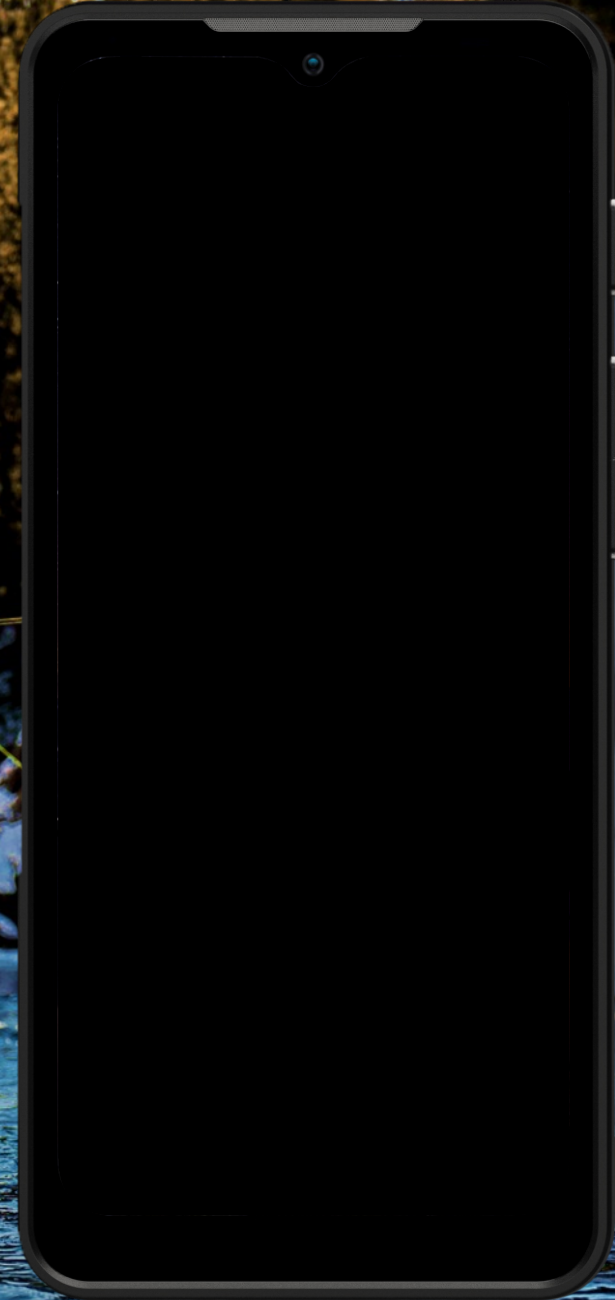




Bullitt

Satellite Messenger

TRUE TWO-WAY TEXT-BASED MESSAGING OVER SATELLITE
INTUITIVE INTERFACE
SEND UNICODE CHARACTERS UP TO 140 BYTES PER MESSAGE
LOCATION SHARING AND CHECK INS
AVAILABLE FOR ANDROID AND iOS





Bullitt

Satellite Messenger

INTERNATIONAL SOS SERVICE
24/7 MONITORED RESPONSE CENTER
5k PROFESSIONALLY TRAINED CASE AGENTS
OVER 200 LANGUAGES SUPPORTED
EMERGENCIES AND ASSISTANCE REQUESTS
ESCALATION TO EMERGENCY SERVICES
COMMUNICATION WITH EMERGENCY CONTACTS
UNLIMITED SOS MESSAGES WITH ALL PACKAGES



SOS CASE HANDLING AND RESPONSE PROVIDED BY
FOCUSPOINT INTERNATIONAL INC



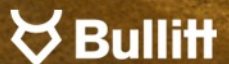
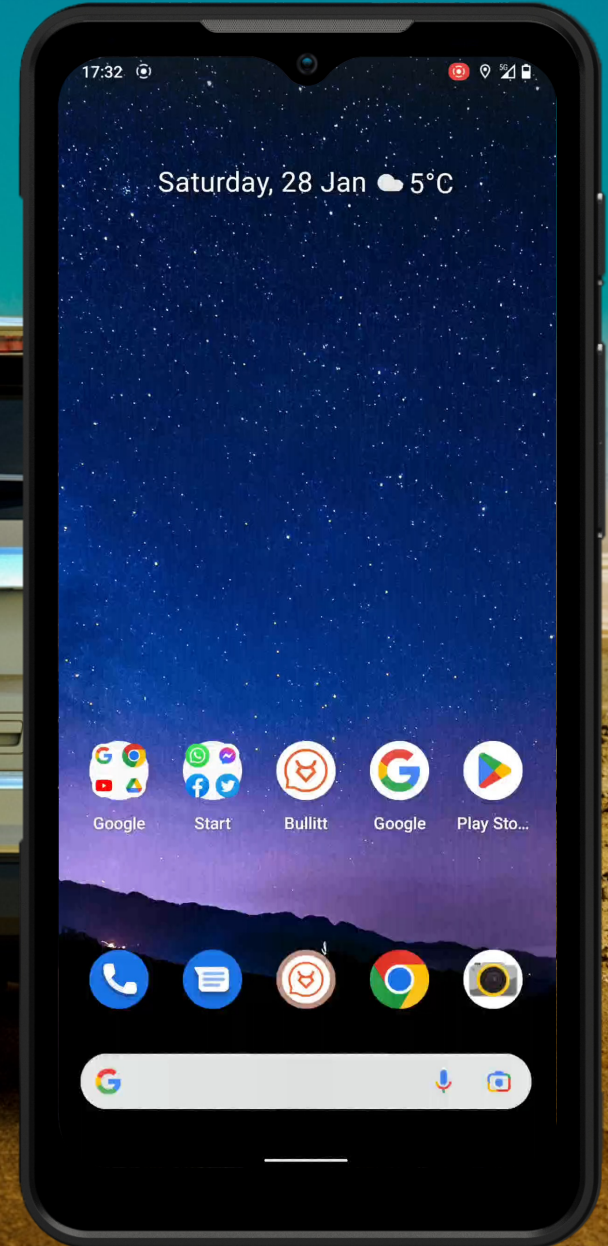
6k+ DISTRESS CALLS PER MONTH
HANDLED BY RESPONSE CENTER STAFF



OVER 100k RESCUES
SINCE 2011, 220+ COUNTRIES



TRUSTED BY 14m
MILLIONS TRUST FOCUSPOINT



SERVICE PLANS

FLEXIBLE, AFFORDABLE PACKAGES FOR ALL BUDGETS

SOS ASSIST

UNLIMITED

SOS ASSISTANCE
WITH SOS RESPONSE CENTER

Professionally staffed response centers,
monitored 24/7 every day – provided by
FocusPoint International

Escalation paths to local emergency services
International language support

FREE 12-MONTH TRIAL

ESSENTIAL

UP TO
30 Messages
PER MONTH, 12 MONTHS

True two-way messaging - send and receive
text messages and location via satellite

SOS Assist included

Paid monthly. Overage bolt-ons available
Subject to minimum subscription period

€4.99 PER MONTH

EVERYDAY

UP TO
125 Messages
PER MONTH, 12 MONTHS

True two-way messaging - send and receive
text messages and location via satellite

SOS Assist included

Paid monthly. Overage bolt-ons available
Subject to minimum subscription period

€9.99 PER MONTH

PREMIUM

UP TO
400 Messages
PER MONTH, 12 MONTHS

True two-way messaging - send and receive
text messages and location via satellite

SOS Assist included

Paid monthly. Overage bolt-ons available
Subject to minimum subscription period

€29.99 PER MONTH

FREEDOM

UP TO
250 Messages
PER YEAR

True two-way messaging - send and receive
text messages and location via satellite

SOS Assist included

Paid monthly. Overage bolt-ons available
Subject to minimum subscription period

€59.99 PER YEAR

LOCATION TRACKING

PLANS COMING Q2 2023



LET'S TALK ABOUT

THE FIRST DEVICES TO LAUNCH ON THE BULLITT SATELLITE CONNECT PLATFORM



THE
CAT® S75
SMARTPHONE



motorola defy²

smartphone

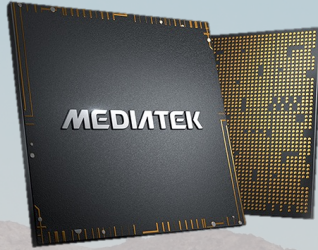
+ defy horizon

bluetooth device



Fast and responsive
MTK D930 octa-core
processor
2x Arm Cortex A78
(2.2GHz), 6x A55 (2.0GHz)

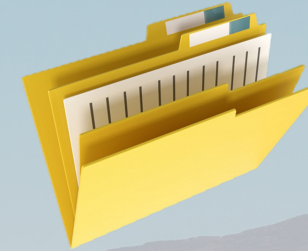
CHIPSET



CONNECTIVITY



Operator-grade 5G, Bullitt Satellite Connect,
dual-band WiFi, Bluetooth 5.1, NFC, Type-C USB



128GB storage
(expandable with
MicroSD card)
6GB RAM

MEMORY

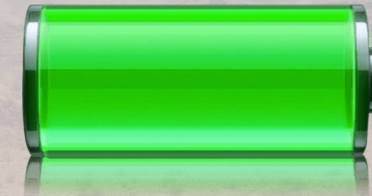


DISPLAY

Large 6.6" FHD+ display
20:9 aspect ratio

THE SATELLITE CONNECTED 

CAT S75



POWER

5000mAh battery delivers up to 2 full days'
power,
15W fast charging, Qi wireless charging supported

DESIGN ELEMENTS

Rear fingerprint sensor
Programmable key
SOS key



ANDROID

Android 12, with upgrades
to 13 and 14
Support for
Android Enterprise device
management features



High quality
50MP + 8MP + 2MP array
Underwater capability
8MP front camera

CAMERAS



DIMENSIONS



70mm x 50mm x 11mm

Weight: ~70 grams

CONNECTIVITY



Bullitt Satellite Connect,
Bluetooth 5.2, GPS location support

DESIGN

Vibration / Buzzer
Buttons: SOS, Power/BT
Pairing, Check In

POWER



600mAh
Li-Po battery
USB-C charger

ROBUST



IP68 dust
and waterproof
Mil Spec 810H



ATTACHMENT
LOOP

POWER
INDICATOR

LOCATION
CHECK IN
INDICATOR

SATELLITE
CONNECTIVITY
INDICATOR

COMPATIBLE WITH:



SOS KEY
WITH TIME DELAYED
ACTIVATION



motorola defy horizon

bluetooth satellite messaging device

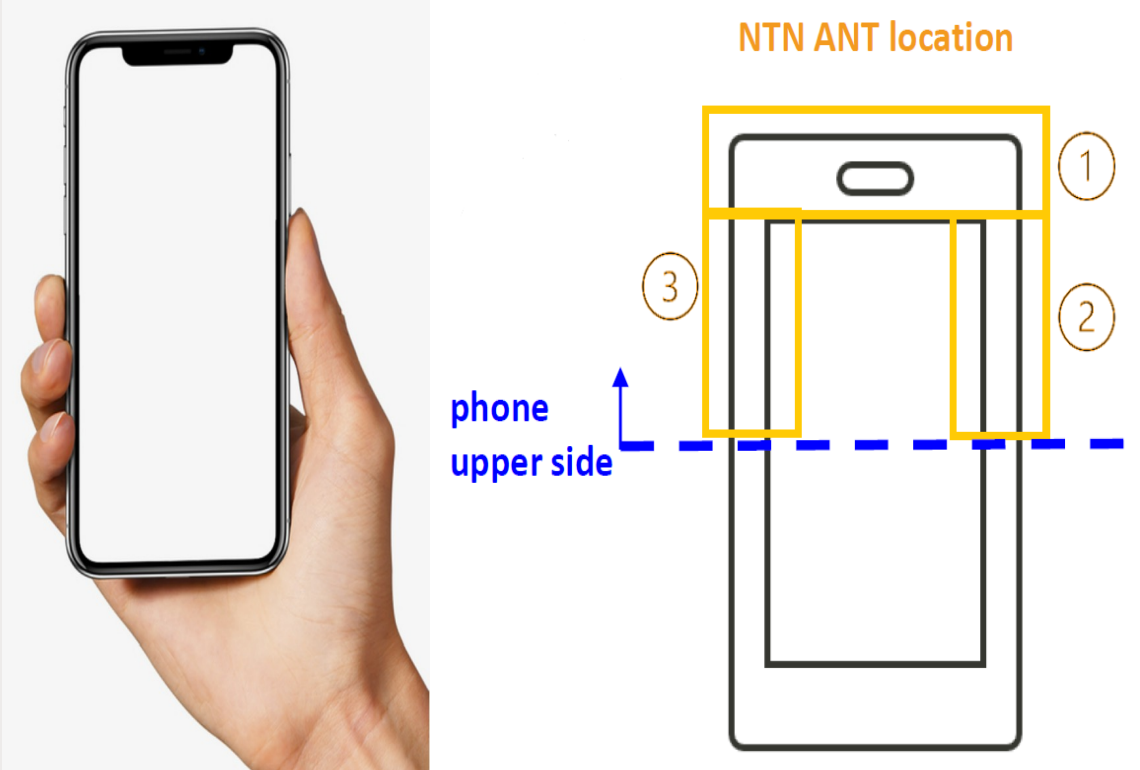
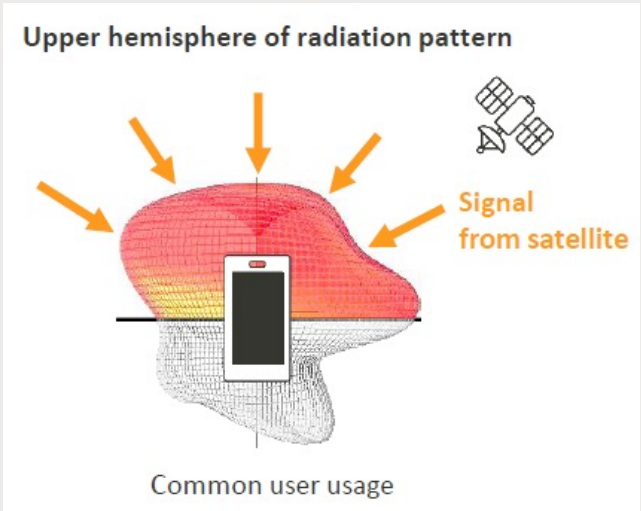


1. NTN antenna location

- Best choice is at the top of the device, but in fact the location #2 and #3 are also possible locations.

2. NTN antenna design target

- Average ANT efficiency: < -5dB
- Antenna pattern: Upper hemisphere of the ANT efficiency < -8dB



Upper Hem. Efficiency	Upper Hem. Percentage	DL SNR	UL SNR
-9.8 dB	33%	0 dB	-2~-3 dB
-6.8 dB	67%	2~3 dB	1~2 dB

NTN antenna design (Cont.)

3. NTN antenna structure

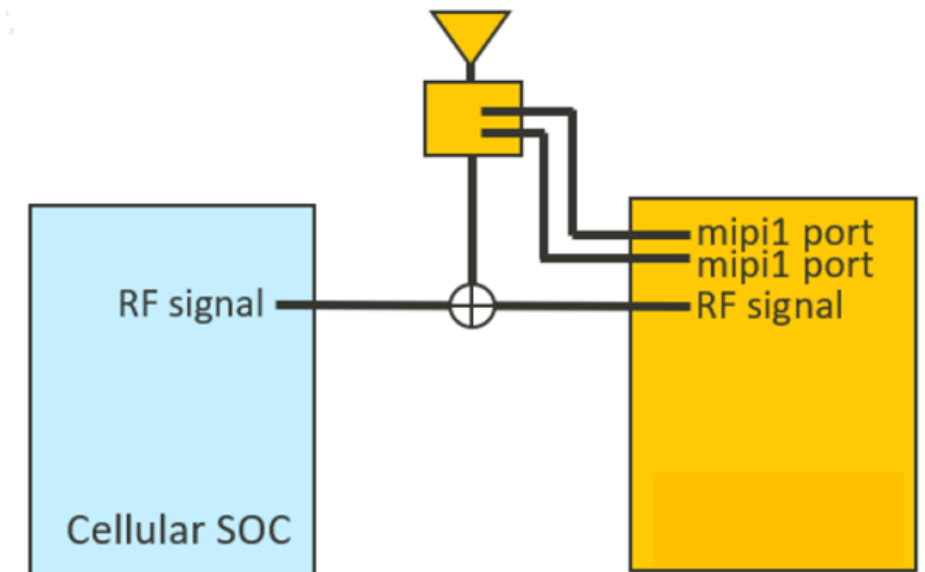
- Option 1: Reserve the original GPS ANT, and add an extra satellite ANT for both L/S bands in the device.
- Option 2: To save the ANT space, we can consider to combine both GPS & satellite ANT's into one, but the challenging would be the communication between cellular SOC and satellite solution.

4. NTN OTA requirements

- Since L-band (B255) signal strength is weaker than S band one, it's better to set higher targets for better user experiences.

Band	TRP (dBm)	TIS (dBm)
Band 255	≥ 16	≤ -108 dBm
Band 256	≥ 16	≤ -108 dBm
Band 23	≥ 16	≤ -108 dBm

Option 2
CO-ANT



1. Maximum TX power

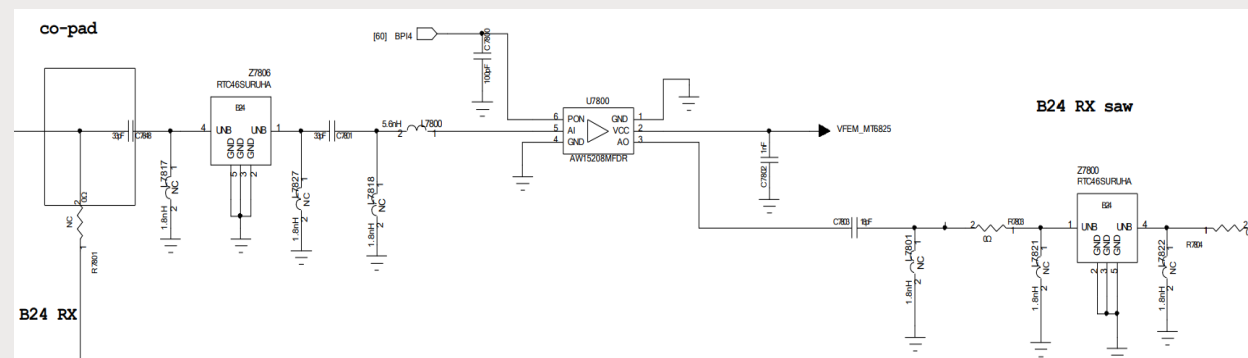
- Transmitting power is always 23dBm.
- Increasing TX power by 1dB is possible, but it would impact on the current drain too.

2. Receiving sensitivity

- To achieve better RX performance like sensitivity, RX blocking and ACS. An extra design (SAW + eLNA + SAW) for receiving paths is required.

3. GPS desense

- Current design covered this issue caused by NTN TX given the ANT isolation between NTN and GPS ANT is minimum 8dB.



NTN design challenges

1. Antenna design

- Since L-band (B255) signal strength is weaker than S band, it's better to get more TRP margins for B255.
- NTN ANT isolation needs to be thought through
- B255 needs to pass CE/FCC SAR due to a global band. Separating the power table for CE/FCC can improve its performance in EU regions.

2. Cellular & NTN co-existence issue

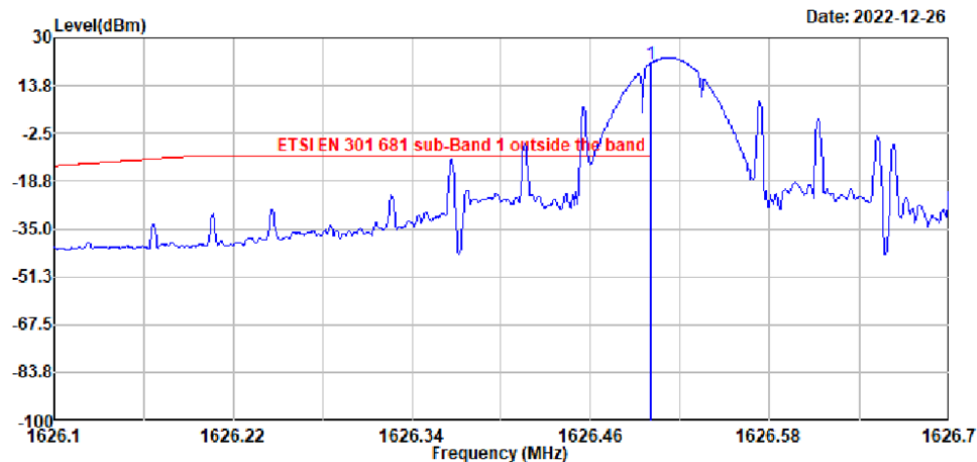
- We've saw some desense issues in between NTN and cellular bands.
- Simultaneous SAR is also a concern.

NTN design challenges (CONT.)

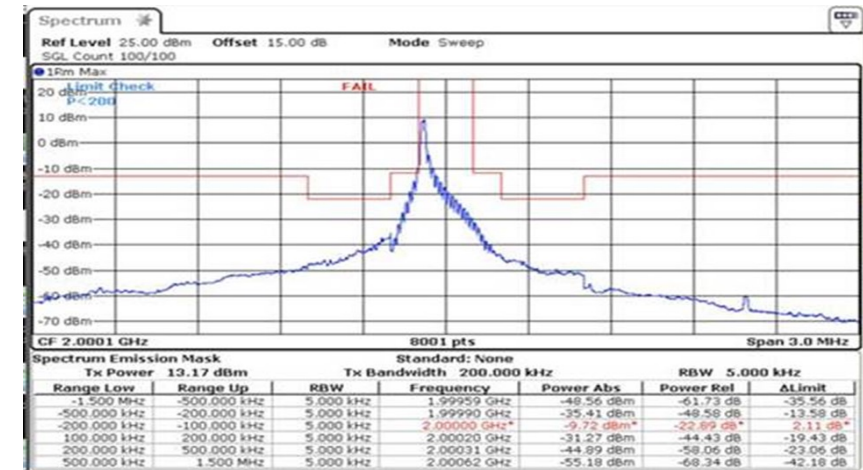
3. Regulatory known issues

- SAR test: TX power reduction is probably required, but we don't want to sacrifice too much. Otherwise, it will impact on user experiences.
- CE/FCC: RX blocking and emission mask are existing issues, and we probably need network providers to assist to handle this.

RX blocking

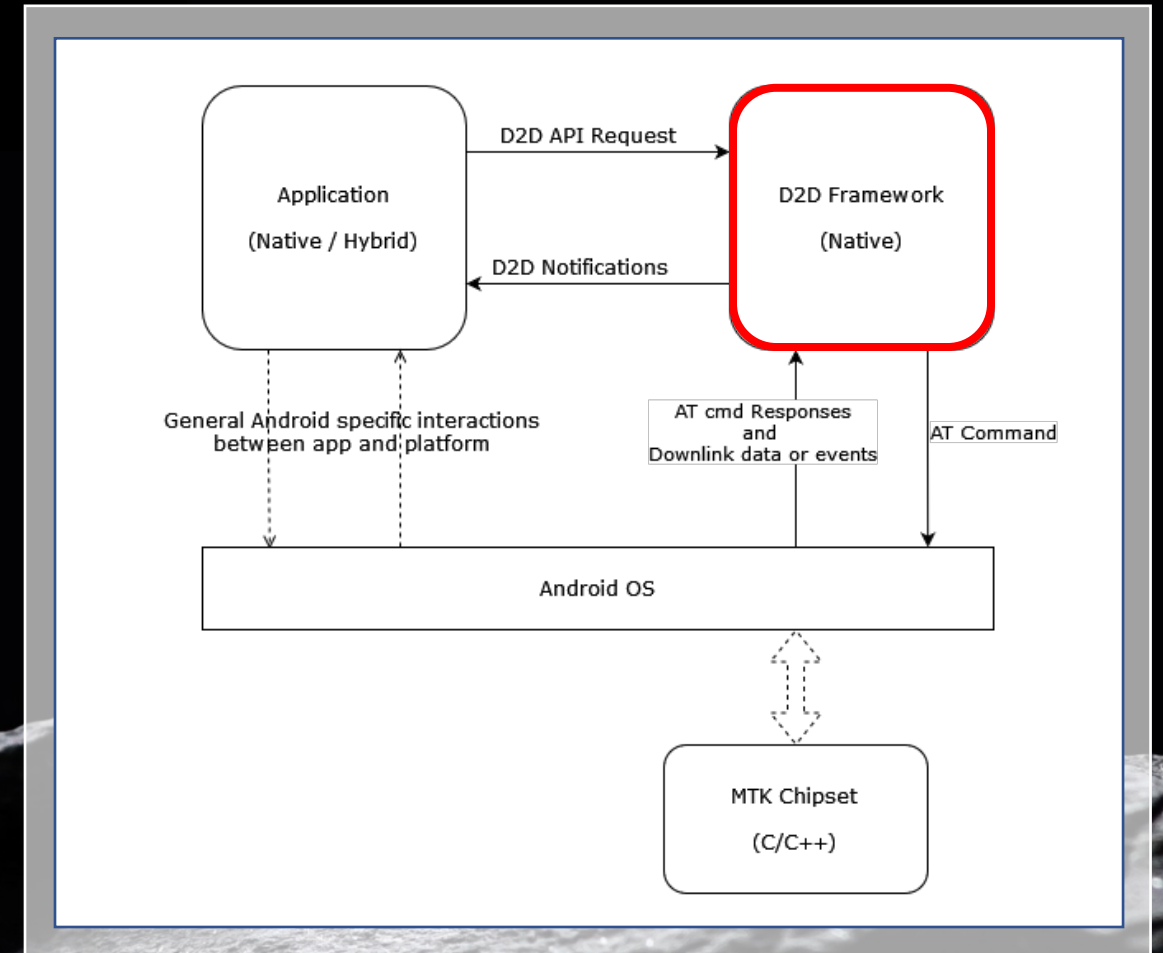


Emission mask



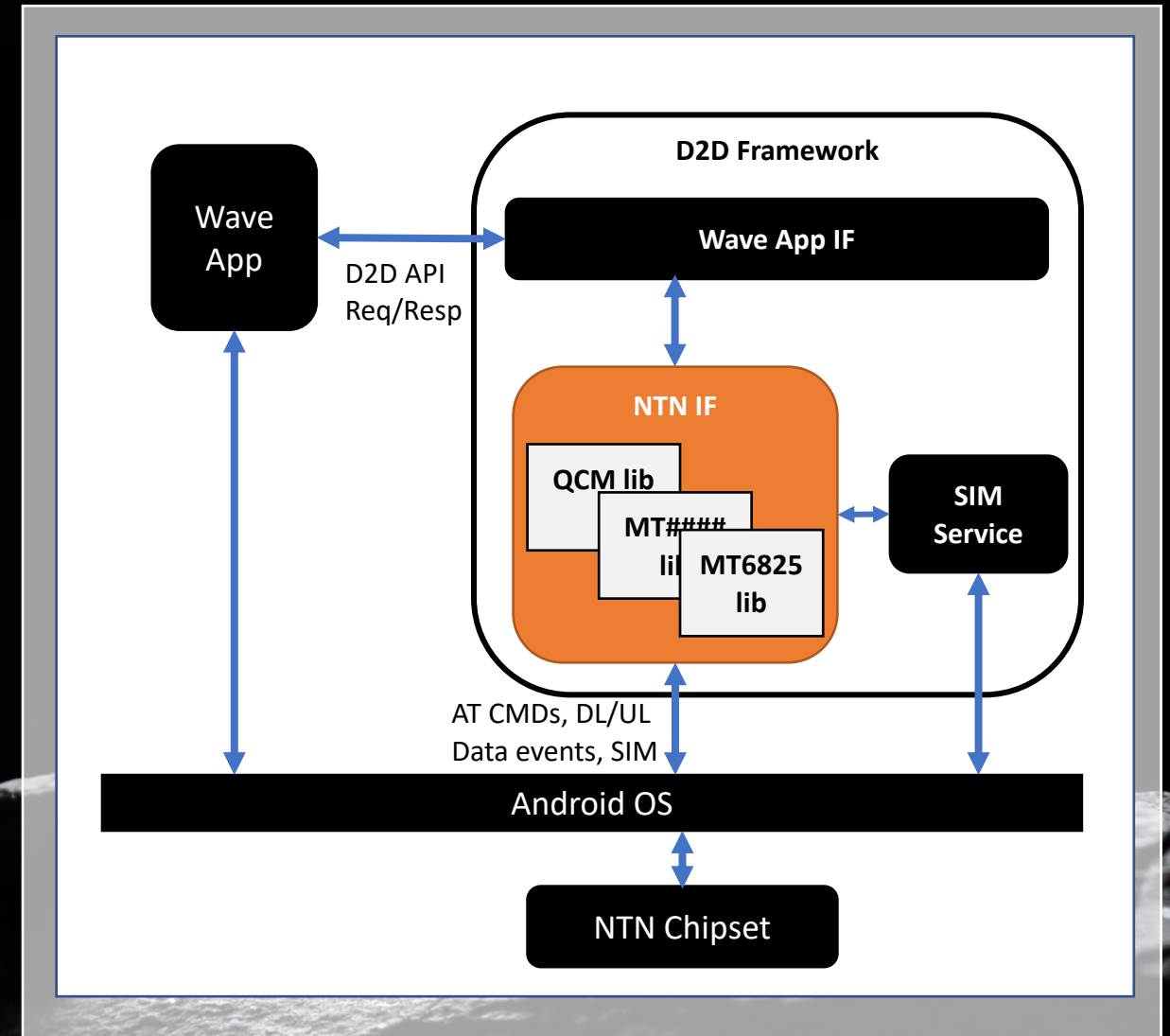
MESSAGING APP ARCHITECTURE

- The D2D Framework sits between the OTT App and the NTN chipset.
- It's main purpose is to translate application commands/responses into a format that the NTN chipset understands.
- Implemented by Bullitt, as a licensable component to support other NTN solutions running on different SoC platforms.



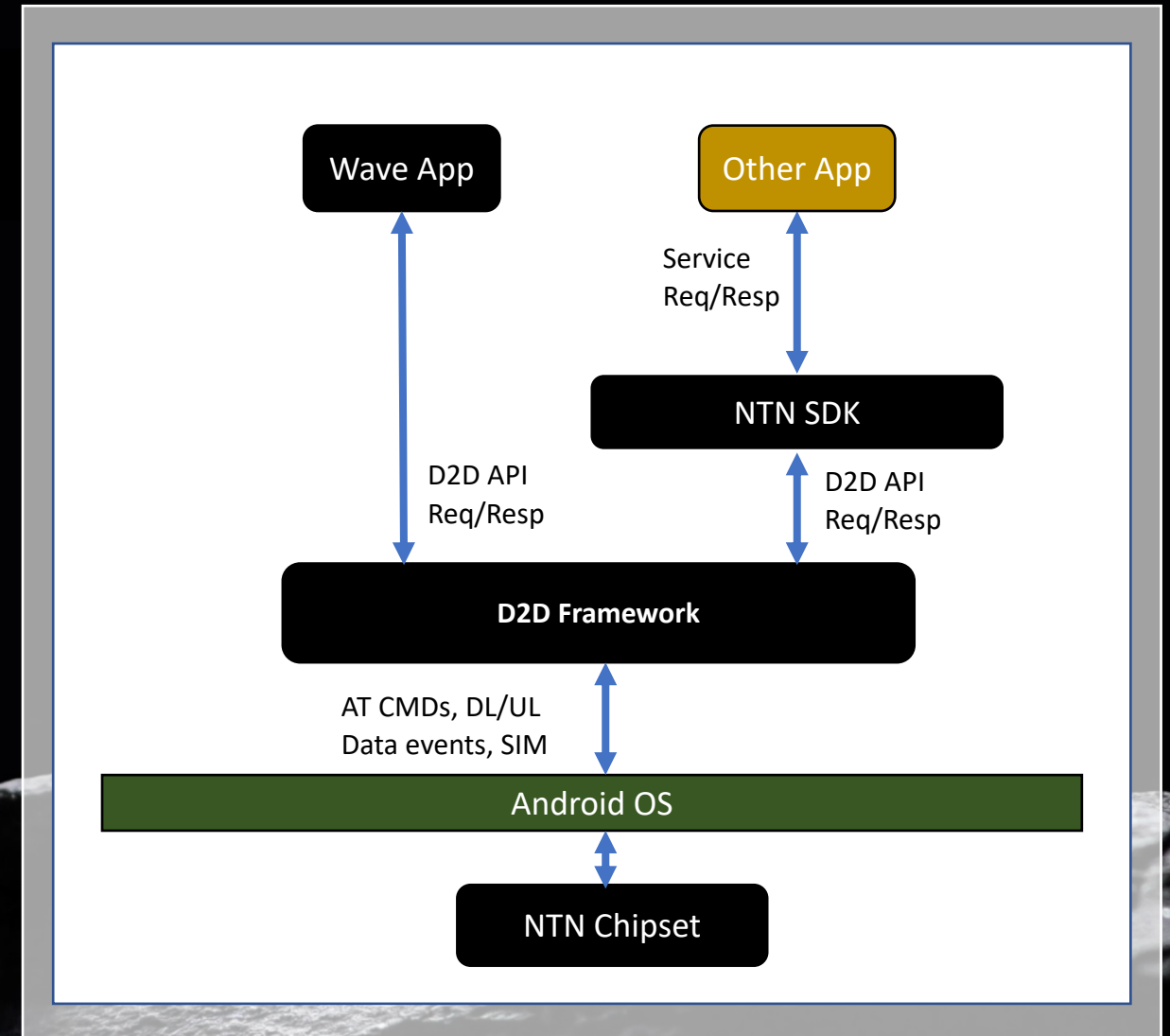
D2D ARCHITECTURE

- The current D2D Framework has been designed specifically to translate OTT app requests into AT Commands that will drive the MTK NTN chipset.
- This AT command translation is the part that could be implemented as libraries.
- This will allow new libraries to be created to support different NTN chipsets.
- The libraries would also contain other NTN chipset specific routines like start up and shut down.
- The app should be headless and could be updated via PAI.



BULLITT NTN SDK

- The NTN SDK will provide NTN services to other apps.
- Data transfers will be limited to the NTN payload size, which is TBC (limited NTN bandwidth).
- Data end points will need to be configured via the SDK, e.g. server URLs.
- Services will include:
 - Send data to the end point
 - Subscribe to NTN system notifications
- A user will need a Waves account to provide NTN access and to manage billing etc.



OUR TOUGHEST DESIGN YET

IT'S SURVIVED MORE THAN 100
RIGOROUS LAB AND REAL-WORLD DURABILITY TESTS
SO YOU CAN BE ASSURED
IT WON'T LET YOU DOWN WHEN YOU NEED IT



DROP-PROOF
on to steel from up to 1.8m,
including repeated drops on
all sides and corners



WATERPROOF
to 5m for over 35 mins,
fully submergible and can
withstand high pressure jets
(IP68, IP69K)



DUST-PROOF
Impervious to dirt, dust and
sand ingress
(IP68, IP69K)



**SCRATCH
RESISTANT**
Thick, recessed pane of
Gorilla Glass Victus



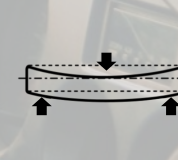
**VIBRATION
TESTED**
(MIL-SPEC 810H)



**HUMIDITY
TESTED**
(MIL-SPEC 810H)



**HIGH/LOW
TEMP TESTED**
(MIL-SPEC 810H)



**BEND & FLEX
RESISTANT**
Structurally reinforced
design



**WASHABLE &
SANITIZABLE**
Safely cleanable with soap
and water, alcohol gels, and
bleach



**HYIGENE+
ANTIBACTERIAL**
All external surfaces are
manufactured with
antimicrobial materials



**KEY PUSH
TESTED**
Physical keys tested to
withstand tens of thousands
of presses

**EUROPE & NORTH AMERICA COVERAGE AT LAUNCH
ANZ, AFRICA & LATAM MID-2023
OTHER REGIONS BEFORE YEAR END**



THANK YOU