# ReliaSpeak

# ReliaSpeak™ SEM1 Crypto Phone

Digital voice encryption technology,
Support 2G/3G voice and VoLTE encrypted calls,
Support encrypt calls over public VoIP Apps…

## Main Features

- ■ Qualcomm 660 AIE CPU, High-performance Android smartphone.
- ■ Supports standard 2G/3G cellular voice channel and VoLTE encrypted calls.
- ■ Supports encrypted calls over WeChat, WhatsApp and other public VoIP Apps.
- ■ Encrypted calls can be interconnected with landline phone (using ReliaSpeak™ Landline Encryptor).
- ■ End-to-end digital voice encryption with ECDH/AES256 cryptographic algorithm.
- ■ Encrypted calls are not restricted by carriers and regions.
- ■ Integrates Multiple security features such as SMS encryption, Email encryption, etc.

## The most powerful call privacy protection

Protecting against cellular network eavesdropping and Trojan eavesdropping

- ■ Uses digital encryption technology instead of analog scrambling technology, Encrypted voice does not have any speech property.
- ■ End-to-end and real-time negotiation of secure key does not rely on carriers or third-party security services.
- ■ Uses AES-256-CTR algorithm, real-time secret key replacement is up to 5 times per second.
- ■ Voice source encryption based on underlying drive technology, avoids original clear voice being stolen by any spyware.

## Make Encrypted calls to Landline

Compatible with the ReliaSpeak™ Landline Encyptor, Make encrypted communication between landline and mobile phone possible



SEM1 Crypto Phone — PSTN — TEC100 Landline Encryptor — landline phone

## Easy to use

No registration, no setup, direct use

- ■ Calls remote user using cellular voice or VoIP APP*.
- ■ The remote user answers the call and the two parties start talking (normal communication, clear voice).
- ■ Either side can press the floating "lock" button to start an encrypted connection.
- ■ After hearing the indication voice "now is in encrypted communication", you can start encrypted calls.
- ■ In encrypted communication, either side can press the floating "lock" button to return to the normal communication.
- ■ In normal and encrypted communication, users can hang up the phone directly.

∗ Including WeChat, WeChat Phone Book, WhatsApp, with more to be supported in the future.

## Cryptographic algorithms are replaceable

Meets your specific security requirement

- ■ **flexibility**

  Customer can develop all security solutions including key management, key exchange, encryption algorithm, etc.

- ■ **Independent**

  We provided a framework, API documentation, and some executable source code.

  Customer only needs to develop a corresponding system service or apps according to the provided program framework and run it in the specified path to implement algorithm replacement.

- ■ **Verifiable**

  Customers can verify whether the voice is encrypted by their own key and algorithm through a simple communication test
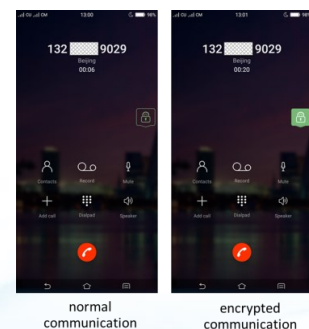


normal communication       encrypted communication

## Encrypted calls anytime， anywhere

Whenever and wherever you are, you can find a suitable way to make encrypted calls, including 2G/3G cellular voice, VoLTE or public VoIP

### How does SEM1 work?



Standard telephone voice processing   vs   ReliaSpeak SEM1 Crypto Phone encrypted voice processing

SEM1 integrates the ReliaSpeak™ digital voice encryption component. During encrypted calls, it first compresses and encrypts the user's voice, and uses advanced AMSI* modulation technology to convert the encrypted digital voice stream into an analog audio signal, which is then handed over to the telephone program for speech coding and cellular network communication, thereby, implements a source -level end-to-end encrypted call that is independent of the voice channel.

* AMSI is an advanced digital modem technology developed by ReliaSpeak corporation. It can effectively resist channel interference and ensure the correctness of data transmission. For detailed instructions of AMSI technology, please visit www.reliaspeak.com

### Applicability of encrypted calls

| Call type | | | The possibility of encrypted calls |
|---|---|---|---|
| Cellular network | Same carrier | VoLTE | Yes |
| | | 3G | Yes |
| | | 2G | Uncertain |
| | Between two carriers (Including roaming) | 3G | Uncertain |
| | | 2G | Almost impossible |
| VoIP | WhatsApp | | Yes |
| | WeChat | | Yes |
| | WeChat phonebook | | Yes |

Notes：
1. It is recommended that users choose the same carrier for encrypted calls, 3G network or VoLTE is the priority option.
2. The effect of encrypted calls cross-carriers is uncertain due to the different network standards of each carrier.
3. The effect of encrypted calls over VoIP is only related to the quality of network connection (including cellular data and Wi-Fi), independent of the carrier and region.
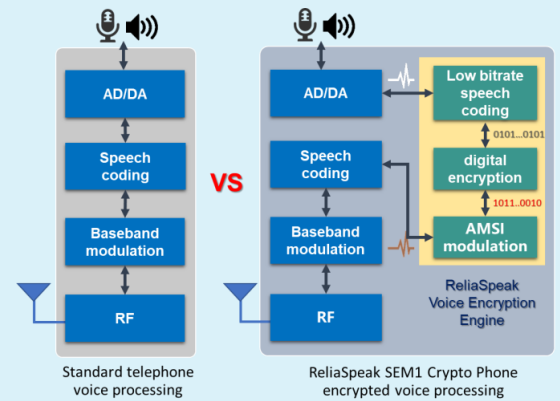
## Specifications

### General Parameters

- Qualcomm 660 AIE CPU 64bit Octa core with Adreno512 GPU
- 6.01" AMOLED full view display, 2160x1080 402PPI， 408nit
- 6GB RAM/64GB ROM
- Main camera 20MP+16MP, rear camera 20MP
- Wi-Fi 2.4G/5G 802.11b/g/n/ac, BT 4.0 support BLE, Hotknot
- Dual Nano SIM
- Fingerprint sensor， face recognition
- Battery 3050 mAh，18w fast charging （9V/2A/QC 3.0)
- Integrated metal body and Nano-injection 155.5 x 75 x 7.5(mm), 160(g)

### Network

- GSM       B2/B3/B5/B8
- WCDMA   B1/B2/B5/B8
- FDD-LTE   B1/B3/B4/B5/B7/B8/B12(17)
- TD-LTE     B34/B38/B39/B40/B41

### Encrypted calls function

- Encoding bit rate of encrypted speech: 1200bps
- Key exchange algorithm: 128/256bit ECDH
- Digital voice encryption algorithm: AES-256-CTR
- Cellular speech codec support: EFR, AMR NB 12.2， UMTS AMR WB， AMR_WB 24.4
- VoIP support: WhatsApp, WeChat, WeChat phonebook

## ReliaSpeak

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