

Formulas taken from AN1200.13 (LoRa Modem Designers Guide)

[illegible]

|                             |
|-----------------------------|
| No warranty of correctness! |
|-----------------------------|

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|              |          |  |  |  |  |  |  |  |
|--------------|----------|--|--|--|--|--|--|--|
| Payload size | 13 bytes | Total payload, including (at least) 13 bytes of LoRaWAN header if used |  |  |  |  |  |  |
|--------------|----------|--|--|--|--|--|--|--|

|               |  |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|--|
| Spread factor | SF9 SF12-SF6. Higher means more range and better reception, and more airtime |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|--|

|                 |     |  |
|-----------------|-----|--|
| Explicit header | yes | no header (1) or with header (0). This is the low-level header that indicates coding rate, payload length and payload CRC presence and can be left out if both sides have these parameters fixed |
|-----------------|-----|--|

|                 |    |   |  |  |  |  |  |  |
|-----------------|----|---|--|--|--|--|--|--|
| Low DR optimize | no | disabled (0) or enabled (1), intended to correct for clock drift at SF11 and SF12 |  |  |  |  |  |  |
|-----------------|----|---|--|--|--|--|--|--|

|             |   |  |  |  |  |  |  |  |
|-------------|---|--|--|--|--|--|--|--|
| Coding rate | 4 / 5   4/5 - 4/8. This is the error correction coding. Higher values mean more overhead. |  |  |  |  |  |  |  |
|-------------|---|--|--|--|--|--|--|--|

|                  |   |   |  |  |  |  |  |
|------------------|---|---|--|--|--|--|--|
| Preamble symbols | 8 | 8 for all regions defined in LoRaWAN 1.0, can be different using plain LoRa |  |  |  |  |  |
|------------------|---|---|--|--|--|--|--|

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|      |          |
|------|----------|
| Tsym | 4.096 ms |
|------|----------|

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|               |    |                   |  |  |  |  |  |  |  |  |  |
|---------------|----|-------------------|--|--|--|--|--|--|--|--|--|
| payloadSymbNb | 28 | number of symbols |  |  |  |  |  |  |  |  |  |
|---------------|----|-------------------|--|--|--|--|--|--|--|--|--|

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|            |                                       |  |  |  |  |  |  |  |  |  |
|------------|---------------------------------------|--|--|--|--|--|--|--|--|--|
| Duty cycle | Time between packet subsequent starts |  |  |  |  |  |  |  |  |  |
|------------|---------------------------------------|--|--|--|--|--|--|--|--|--|

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