Crypto Forum
Internet-Draft
Intended status: Informational
Expires: 3 September 2026

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2 March 2026

Concrete Hybrid PQ/T Key Encapsulation Mechanisms
draft-irtf-cfrg-concrete-hybrid-kems-03

Abstract

PQ/T Hybrid Key Encapsulation Mechanisms (KEMs) combine "post-quantum" cryptographic algorithms, which are safe from attack by a quantum computer, with "traditional" algorithms, which are not. CFRG has developed a general framework for creating hybrid KEMs. In this document, we define concrete instantiations of this framework to illustrate certain properties of the framework and simplify implementors' choices.

About This Document

This note is to be removed before publishing as an RFC.

The latest revision of this draft can be found at https://cfrg.github.io/draft-irtf-cfrg-concrete-hybrid-kems/draft-irtf-cfrg-concrete-hybrid-kems.html. Status information for this document may be found at https://datatracker.ietf.org/doc/draft-irtf-cfrg-concrete-hybrid-kems/.

Discussion of this document takes place on the Crypto Forum Research Group mailing list (mailto:cfrg@ietf.org), which is archived at https://mailarchive.ietf.org/arch/search/?email_list=cfrg. Subscribe at https://www.ietf.org/mailman/listinfo/cfrg/.

Source for this draft and an issue tracker can be found at https://github.com/cfrg/draft-irtf-cfrg-concrete-hybrid-kems.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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1. Introduction

PQ/T Hybrid Key Encapsulation Mechanisms (KEMs) combine "post-quantum" cryptographic algorithms, which are safe from attack by a quantum computer, with "traditional" algorithms, which are not. Such KEMs are secure against a quantum attacker as long as the PQ algorithm is secure, and remain secure against traditional attackers even if the PQ algorithm is not secure.

[HYBRID-KEMS] defines a general framework for creating hybrid KEMs. It includes multiple specific mechanisms for combining a PQ algorithm with a traditional algorithm, with different performance properties and security requirements for the underlying algorithms.

In this document, we describe instances of these different specific combiners, with specific choices for the underlying algorithms. The choices described here illustrate the security analysis required to make choices that meet the requirements of the general framework, and can serve as a baseline for application designers. We also provide test vectors for these instances so that implementors can verify the correctness of their implementations.

2. Conventions and Definitions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

We make extensive use of the terminology in [HYBRID-KEMS].

3. Concrete Nominal Group and KEM Instances

This document introduces concrete hybrid KEM instances that in turn depend on concrete KEM and nominal group instances. This section introduces the nominal groups and KEM instances used for concrete hybrid KEM instances, specified in line with the abstraction from [HYBRID-KEMS]. Section 3.1 defines the concrete nominal groups, and Section 3.2 defines the nominal KEMs.

3.1. Nominal Groups

This section specifies concrete nominal groups that implement the abstraction in [HYBRID-KEMS]. It includes groups based on the NIST curves P-256 and P-384, as well as a group based on Curve25519.

3.1.1. P-256 and P-384 Nominal Groups

The NIST P-256 and P-384 elliptic curves are defined in [SP800-186]. They are widely used for key agreement and digital signature. In this section, we define how they meet the Nominal Group interface described in [HYBRID-KEMS].

Group elements are elliptic curve points, represented as byte strings in the uncompressed representation defined by the Elliptic-Curve-Point-to-Octet-String function in [SEC1]. Scalars are represented as integers in big-endian byte order. The generator g is the standard base point defined in Section 3.2.1 of [SP800-186].

The Nominal Group algorithms are the same for both groups:

Exp(p, x) -> q: This function computes scalar multiplication between the input element (or point) p and the scalar x, according to the group law for the curve specified in [SP800-186].

RandomScalar(seed) -> k: Implemented using rejection sampling from a seed, as described below.

ElementToSharedSecret(p) -> ss: The shared secret is the X coordinate of the elliptic curve point p, encoded as an Nss-byte string using the Field-Element-to-Octet-String function in [SEC1].

Given a seed, the RandomScalar algorithm is defined as follows:

```
def RandomScalar(seed):
  start = 0
  end = Nscalar
  sk = OS2IP(seed[start : end])

  while sk == 0 || sk >= order:
    start = end
    end = end + Nscalar
    if end > len(seed):
        raise Exception("Rejection sampling failed")
    sk = OS2IP(seed[start : end])
  return sk
```

RandomScalar fails with cryptographically negligible probability, as long as the input seed is uniformly random. (The chance of a single rejection is < 2^-32 for P-256 and < 2^-192 for P-384. The chance of more than Nreject rejections is thus < 2^-128 for P-256 and < 2^-192 for P-384.)

The OS2IP function converts a byte string to a non-negative integer, as described in [RFC8017], assuming big-endian byte order. The order variable represents the order of the curve being used (see Section 3.2.1 of [SP800-186]), reproduced here for reference:

P-256:
0xffffffff00000000ffffffffffffffffbce6faada7179e84f3b9cac2fc632551

P-384:
0xffffffffffffffffffffffffffffffffffffffffffffffffc7634d81f4372ddf
581a0db248b0a77aecec196accc52973

The group constants for the P-256 group are as follows:

Nseed: 128
Nscalar: 32
Nelem: 65
Nss: 32

The group constants for the P-384 group are as follows:

Nseed: 48
Nscalar: 48
Nelem: 97
Nss: 48

3.1.2. Curve25519 Nominal Group

The generator g for the Curve25519 nominal group is the value 9, represented as a 32-byte little-endian integer, as defined in Section 4.1 of [RFC7748].

The following functions for the Curve25519 nominal group are defined:

Exp(p, x) -> q: Implemented by X25519(x, p) from [RFC7748].

RandomScalar(seed) -> k: Implemented by the identity function, i.e., by returning the seed.

ElementToSharedSecret(p) -> ss: Implemented by the identity function, i.e., by outputting P.

The following constants are also defined.

Nseed: 32
Nscalar: 32
Nelem: 32
Nss: 32

3.2. Concrete KEM Instances

This section specifies concrete KEM instances that implement the KEM abstraction from [HYBRID-KEMS].

3.2.1. ML-KEM-768 and ML-KEM-1024

The ML-KEM-768 and ML-KEM-1024 KEMs are defined in [FIPS203]. The algorithms defined in that specification map to the KEM abstraction in [HYBRID-KEMS] as follows:

GenerateKeyPair() -> (dk, ek): Implemented as KeyGen in Section 7.1 of [FIPS203].

DeriveKeyPair(seed) -> (dk, ek): Implemented as KeyGen_internal(seed[0:32], seed[32:64]), where KeyGen_internal is defined in Section 6 of [FIPS203].

Encaps(ek) -> (ss, ct): Implemented as Encaps in Section 7.2 of [FIPS203].

Decaps(dk, ct) -> ss: Implemented as Decaps in Section 7.3 of [FIPS203].

The KEM constants for ML-KEM-768 are as follows:

Nseed: 64
Nek: 1184
Ndk: 64
Nct: 1088
Nss: 32

The KEM constants for ML-KEM-1024 are as follows:

Nseed: 64
Nek: 1568
Ndk: 64
Nct: 1568
Nss: 32

3.3. Concrete PRG instances

This section specifies concrete PRG instances that implement the PRG abstraction from [HYBRID-KEMS] and meet the required security definitions.

3.3.1. SHAKE256

SHAKE256 is an extendable-output function (XOF) defined in the SHA-3 specification [FIPS202]. It can be used as a PRG for arbitrary values of Nout. When SHAKE256 is used as the PRG component in a hybrid KEM, it is implicit that Nout == KEM_T.Nseed + KEM_PQ.Nseed or Nout == Group_T.Nseed + KEM_PQ.Nseed as appropriate.

3.4. Concrete KDF instances

This section specifies concrete KDF instances that implement the KDF abstraction from [HYBRID-KEMS] and meet the required security definitions.

3.4.1. SHA-3

The SHA-3 hash function is defined in [FIPS202]. It produces a 32-byte output, so it is appropriate for use in hybrid KEMs with Nss = 32.

4. Concrete Hybrid KEM Instances

This section instantiates the following concrete KEMs:

MLKEM768-P256: A hybrid KEM composing ML-KEM-768 and P-256 using the CG framework, with SHAKE256 as the PRG and SHA3-256 as the KDF.

MLKEM768-X25519: A hybrid KEM composing ML-KEM-768 and Curve25519 using the CG framework, with SHAKE256 as the PRG and SHA3-256 as the KDF. This construction is identical to the X-Wing construction in [XWING-SPEC].

MLKEM1024-P384: A hybrid KEM composing ML-KEM-1024 and P-384 using the CG framework, with SHAKE256 as the PRG and SHA3-256 as the KDF.

Each instance specifies the PQ and traditional KEMs being combined, the combiner construction from [HYBRID-KEMS], the label to use for domain separation in the combiner function, as well as the PRG and KDF functions to use throughout.

4.1. MLKEM768-P256

This hybrid KEM combines ML-KEM-768 with P-256 using the CG framework from [HYBRID-KEMS]. It has the following components:

* Group_T: P-256 Section 3.1.1

* KEM_PQ: ML-KEM-768 Section 3.2.1

* PRG: SHAKE-256 [FIPS202]

* KDF: SHA3-256 [FIPS202]

* Label: MLKEM768-P256 (hex: 4d4c4b454d3736382d50323536)

The KEM constants for the resulting hybrid KEM are as follows:

Nseed: 32
Nek: 1249
Ndk: 32
Nct: 1153
Nss: 32

4.2. MLKEM768-X25519

This hybrid KEM combines ML-KEM-768 with X25519 using the CG framework from [HYBRID-KEMS]. It is identical to the X-Wing construction from [XWING-SPEC]. It has the following components:

* KEM_PQ: ML-KEM-768 Section 3.2.1

* Group_T: Curve25519 Section 3.1.2

* PRG: SHAKE-256 [FIPS202]

* KDF: SHA3-256 [FIPS202]

* Label: \.//^\ (hex: 5C2E2F2F5E5C)

The following constants for the hybrid KEM are also defined:

Nseed: 32
Nek: 1216
Ndk: 32
Nct: 1120
Nss: 32

4.3. MLKEM1024-P384

This hybrid KEM combines ML-KEM-1024 with P-384 using the CG framework from [HYBRID-KEMS]. It has the following components:

* Group_T: P-384 Section 3.1.1

* KEM_PQ: ML-KEM-1024 Section 3.2.1

* PRG: SHAKE-256 [FIPS202]

* KDF: SHA3-256 [FIPS202]

* Label: MLKEM1024-P384 (hex: 4d4c4b454d313032342d50333834)

The following constants for the hybrid KEM are also defined:

Nseed: 32
Nek: 1665
Ndk: 32
Nct: 1665
Nss: 32

5. Security Considerations

The Security Considerations section in generic hybrid KEM framework lays out the requirements for component algorithms in order for a hybrid KEM constructed according to the framework to be secure [HYBRID-KEMS]. In brief:

* A nominal group needs to be one in which the Strong Diffie-Hellman problem is hard.

* A KEM need to be IND-CCA secure.

* When the C2PRI combiner is used (as it is here), the PQ KEM also needs to satisfy the C2PRI property.

* KDFs need to be indifferentiable from a random oracle, even by a quantum attacker.

* A PRG needs to be a secure pseudo-random generator

The components used in this document meet these requirements:

* The security of X25519, P-256, and P-384 as nominal groups is shown in [ABH_21].

* ML-KEM is shown to be IND-CCA in https://eprint.iacr.org/2024/843 and shown to be C2PRI in [XWING].

* The sponge construction used by SHA3-256 is shown to be indifferentiable from a random oracle by a classical attacker in [BDP_08]. Indifferentiability with respect to quantum attackers is shown in [ACM_25].

* Since SHAKE256 is built on the same sponge construction as SHA3-256, it is also indifferentiable from a random oracle, which is a sufficient condition for being a secure pseudorandom generator.

6. IANA Considerations

This document requests that the following values be added to the "Hybrid KEM Labels" registry:

Label	Fw	PQ Component	T Component	KDF	PRG	Nseed	Nss	Reference
"MLKEM768-P256"	CG	ML-KEM-768	P-256	SHA3-256	SHAKE-256	32	32	[RFCXXXX]
"\.//^\"	CG	ML-KEM-768	Curve25519	SHA3-256	SHAKE-256	32	32	[RFCXXXX]
"MLKEM1024-P384"	CG	ML-KEM-1024	P-384	SHA3-256	SHAKE-256	32	32	[RFCXXXX]

Table 1: Hybrid KEM Labels

[RFC EDITOR: Please replace "XXXX" above with the number assigned to this RFC]

7. References

7.1. Normative References

[FIPS202] "SHA-3 standard :: permutation-based hash and extendable-output functions", National Institute of Standards and Technology (U.S.), DOI 10.6028/nist.fips.202, 2015, <https://doi.org/10.6028/nist.fips.202>.

[FIPS203] "Module-lattice-based key-encapsulation mechanism standard", National Institute of Standards and Technology (U.S.), DOI 10.6028/nist.fips.203, August 2024, <https://doi.org/10.6028/nist.fips.203>.

[HYBRID-KEMS]
Connolly, D., Barnes, R., and P. Grubbs, "Hybrid PQ/T Key Encapsulation Mechanisms", Work in Progress, Internet-Draft, draft-irtf-cfrg-hybrid-kems-09, 2 March 2026, <https://datatracker.ietf.org/doc/html/draft-irtf-cfrg-hybrid-kems-09>.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/rfc/rfc2119>.

[RFC7748] Langley, A., Hamburg, M., and S. Turner, "Elliptic Curves for Security", RFC 7748, DOI 10.17487/RFC7748, January 2016, <https://www.rfc-editor.org/rfc/rfc7748>.

[RFC8017] Moriarty, K., Ed., Kaliski, B., Jonsson, J., and A. Rusch, "PKCS #1: RSA Cryptography Specifications Version 2.2", RFC 8017, DOI 10.17487/RFC8017, November 2016, <https://www.rfc-editor.org/rfc/rfc8017>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/rfc/rfc8174>.

[SP800-186]
Chen, L., Moody, D., Regenscheid, A., Robinson, A., and K. Randall, "Recommendations for Discrete Logarithm-based Cryptography:: Elliptic Curve Domain Parameters", National Institute of Standards and Technology, DOI 10.6028/nist.sp.800-186, February 2023, <https://doi.org/10.6028/nist.sp.800-186>.

7.2. Informative References

[ABH_21] Alwen, J., Blanchet, B., Hauck, E., Kiltz, E., Lipp, B., and D. Riepel, "Analysing the HPKE standard.", April 2021.

[ACM_25] Alagic, G., Carolan, J., Majenz, C., and S. Tokat, "The Sponge is Quantum Indifferentiable", 2025, <https://eprint.iacr.org/2025/731.pdf>.

[ANSIX9.62]
ANSI, "Public Key Cryptography for the Financial Services Industry: the Elliptic Curve Digital Signature Algorithm (ECDSA)", ANS X9.62-2005, November 2005.

[BDP_08] Bertoni, G., Daemen, J., Peeters, M., and G. V. Assche, "On the Indifferentiability of the Sponge Construction", 2008, <https://www.iacr.org/archive/eurocrypt2008/49650180/49650180.pdf>.

[CDM23] Cremers, C., Dax, A., and N. Medinger, "Keeping Up with the KEMs: Stronger Security Notions for KEMs and automated analysis of KEM-based protocols", 2023, <https://eprint.iacr.org/2023/1933.pdf>.

[KSMW2024] Kraemer, J., Struck, P., and M. Weishaupl, "Binding Security of Implicitly-Rejecting KEMs and Application to BIKE and HQC", n.d., <https://eprint.iacr.org/2024/1233>.

[RFC5915] Turner, S. and D. Brown, "Elliptic Curve Private Key Structure", RFC 5915, DOI 10.17487/RFC5915, June 2010, <https://www.rfc-editor.org/rfc/rfc5915>.

[SCHMIEG2024] Schmieg, S., "Unbindable Kemmy Schmidt: ML-KEM is neither MAL-BIND-K-CT nor MAL-BIND-K-PK", 2024, <https://eprint.iacr.org/2024/523.pdf>.

[SEC1] "Elliptic Curve Cryptography, Standards for Efficient Cryptography Group, ver. 2", 2009, <https://secg.org/sec1-v2.pdf>.

[XWING] "X-Wing: The Hybrid KEM You've Been Looking For", 2024, <https://eprint.iacr.org/2024/039.pdf>.

[XWING-SPEC] Connolly, D., Schwabe, P., and B. Westerbaan, "X-Wing: general-purpose hybrid post-quantum KEM", Work in Progress, Internet-Draft, draft-connolly-cfrg-xwing-kem-10, 2 March 2026, <https://datatracker.ietf.org/doc/html/draft-connolly-cfrg-xwing-kem-10>.

Appendix A. Test Vectors

This section provides test vectors for the three concrete hybrid KEM instantiations defined in this document. Each test vector represents a single key generation followed by an encapsulation:

* seed - the seed used for deterministic key generation

* decapsulation_key - the derived decapsulation key

* decapsulation_key_pq - the decapsulation key sub-key for the PQ component

* decapsulation_key_t - the decapsulation key sub-key for the T component

* encapsulation_key - the derived encapsulation key

* randomness - the randomness used for encapsulation

* ciphertext - the ciphertext produced by the encapsulation operation

* shared_secret - the shared secret produced by the encapsulation operation

The seed and randomness values are opaque random values, as are the decapsulation_key and shared_secret fields (as defined by the hybrid KEM specifications). The encapsulation_key and ciphertext fields reflect the concatenated encapsulation keys and ciphertexts (in (PQ, T) order) called for in the hybrid KEM specifications.

The decapsulation_key_pq values are ML-KEM expanded private keys in the format defined by [FIPS203]. The decapsulation_key_t values for X25519 are simply opaque 32-byte strings. The decapsulation_key_t values for the NIST curves are big-endian integers reflecting the private scalar value for the private key. This format is identical to the privateKey value used in the PKCS#8 format for private keys [RFC5915].

A.1. MLKEM768-P256

```
seed = 0000000000000000000000000000000000000000000000000000000000000000
       0000000
randomness = 6464646464646464646464646464646464646464646464646464646464
             4646464646464646464646464646464646464646464646464646464646
             6464646464646464646464646464646464646464646464646464646464
             4646464646464646464646464646464646464646464646464646464646
             6464646464646464646464646464646464646464646464646464646464
             4646464646464646464646464646464646464646464646464646464646
             64646464646464
encapsulation_key = 3d209f716752f6408e7f89bceef97ac3885300453779
                    27644ef046c0a7cae978c8841a0133aac4f1e1a70272
                    77f671219cf58b85d29c8fec08edd432e787a3cf9936
                    fe0026a113cb9efb1d7214049527bfe2141ea170b029
                    4a59403ab0ce16760a8baa95b823cbb8aacdcc17ef32
                    775223c791e3740163941f9bb3f63346bef1c050c31f
                    932c62719429aff14c2bd438ab135bed692d56c77c04
```

cbbffd6335b578318b513771e84b14ea821262141ca0
06ccb8bf2500aa1008970f216fe7f1ae34125aa29049
2c069a189222adc322f97649c762c7d3128ad3bb2667
971d0744014bc3b67445cbcd0b3e7ea69fb1cb9f9c33
1f97487920187292926d04a25a2650abbd44982bb0c3
c6301fe6a61330d24d8a3c7021dc3e3392c79a139b37
613bba67a2984298507b84a4d61eef18acfb979af2d3
9caa4c0db4513815359d76fc378c63a7f4f3053b1716
8d0221cf0c2eec5514ba235f81d04d67c3b5c5180949
17671c26a7c046457533cc32844581277a03eb065c45
29a779a9a5878f2aac3f81db9ed3d8c9345697058cbb
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00bd1e5002e095be06c23f1fb212f5801f24b6b28c0c
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a259a2703aa4c308224bdb741c65c7a5d4bff7882795
07bbfe513d7aa5694e7b3cdf62ab36432742d4a0ca9b
3570ba742fa803b46989c8526ea586cc4fc32866143b
79601725fa545fd280b404530318bbc3371194710b6d
74beaa629eb18a36a953b75915ae96999ba5c88cdc56
a46861c50032c9b630bcc1445a30878979bc55a2c095
5bf399b231203b90c651b6afe0e242b5a543250b142f
7291ed753d816098f7913302a8ce91641716623d4fc2
ac6772aa5f3674042b7c4a18a2186289a4ac4e200774
596ca03e6798c7506b984999db6ac142586bae0799f1
e776f9f5247dc574d8556ddf9bbbc4ca3643263457f7
4248010d62d4311268360aecb4902b450bf2050ecb8b
a7a92820d233f5a14ed31225a1d17ca6f19e825894cf
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137ad9136c113f05eb54c409520edc72e4150cc3a24b
0f819eec11bbd19ca9645b0810a60b4a8a9e9c395539
6a1653955b047bcf4f98433c27236c570d75f809e44a
af2dc33665826351872c293350ab324518c8c0c80b52
1c80c81a56bdc968a5650315a830c8bb17532c62ccc2
3b1d46412c256b224fd4674491803501d0143125c757
7239689965b6989ca561793c0f85c62a9e13487da176
62a7188c70b1040a67ed4c3f85e74e3691822fb96314
d6134fe6a626b3cbe1461d62a7b573b2cc75579ffa22
967e36ceb2a1aa0b71875a22751d706b72ca9ecd0c81
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b69509dbc84032868844ab3f65bb1df8beadf36442e4
8e339c967023a525411544c789a2f04dacd06ffef783
02210450b931f6b4c32aab34a3f5260b810f4c9a946f
c22d3baabaa80ba8d9955d6dc35e8609b4256b482cdc
9d8977c1a47a354e7c527fdb1672e166917b95cd6351
820261daab361f8a2dcbb240c55abd6a8105e5291b42
7b566d731e6b7047189cff20d8b120e0b3e72472d1b0
086812200fd3698e23f06e4f4e08bbb54cc2049c039c
845be659999c8fa48d7f62327c146cf1bc0b0bb1b91b

```
                    30174b7bc220d422023bff6b0dee263532c503f3982e
                    4d3e27071b855578a9a9aa63b8a8c339bf
   decapsulation_key = 0000000000000000000000000000000000000000000000
                    0000000000000000000
   decapsulation_key_pq = f5977c8283546a63723bc31d2619124f11db46586
                      43336741df81757d5ad3062221e124311ec7f7181
                      568de7938df805d894f5fded465001a04e260a494
                      82cf5
   decapsulation_key_t = e00b3f9d338de90488973787b0916a4a9ae8bebf4e
                     2bc07a7bc18f1a62215182
   ciphertext = d81018a94f8078e02105beaa814e003390befa4589bb614f773
                97af42d8e8150796f2c88a4efca81b8cf93c0ae3716c54ec1b0
                45e3875f38c2dd12d7f717bd7fb701a9fecda5ed8b764c9a35d
                4a5c1d8930f6071f653eebb2d1afa77debb8302d16f17e0f5f3
                920a71a4d49beafa0e1c7e443f8abca64a65a9e81a97e7357bf
                902573363c0e1a12e5228036828e3f759121fada92441fe334e
                85d79347e470d2fed945541d832c54baaa3cb7526c3853954db
                4f73547cc7c27fd38398bfa7704952cb841e38b270e4db7435f
                0ee22f57d7ad3270bd0c88e71b4b864cf2277c65daa10a6dad4
                c7abecd95cc4ebec39c08404b522e4ecc1545713f76bebd3b5a
                0f2feb3461936065dbd13f6a1f61e1b142a2af2e5a482ba2c50
                cf0317049c0b3bfd6d5e9240eba9111d2030fdea17e33b65240
                20d30b0c4f8069285f3a6ca267d287d01e827d8422bf5426e11
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   decapsulation_key_pq = dbf77c8d79c80ad6b0763d42a3fe53f0f1dc03022
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                         988d9355e816055cf986e280532d47cc19f2240cc
                         23419
   decapsulation_key_t = a20315485f73a3c17e18a3f155ac33e9a980896b2f
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   ciphertext = 600ecf4026683898d0e339eeea9ebd437a4a802952bf32bfa32
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   seed = 0202020202020202020202020202020202020202020202020202020202
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   randomness = 6666666666666666666666666666666666666666666666666666
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                6666666666666666666666666666666666666666666666666666
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   encapsulation_key = 08118d8819772292c976ec971ee3039195800c823544
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   decapsulation_key_pq = 971619c09e6627cea855bbf7817dd36cdbf7d2de9
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                           86fe9
   decapsulation_key_t = 96141896442e2dca19ab5f49cc2450f804fa3eb949
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   ciphertext = 413c55d5710bae6376761dada807daffd4dc45f9f70d825e0d4
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                3d1d3ce03ffac9a747f4c1993fddb2ec93a4116a86f022a77c3
                c17191559a4c2a1aa57e79b8d1977da2c959172f478e341e270
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   shared_secret = d17a7ca859a18cfbb5fc7bcba2ec54aa0e9ac44959023199
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   seed = 0303030303030303030303030303030303030303030303030303030303030
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   randomness = 6767676767676767676767676767676767676767676767676767676
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   encapsulation_key = 04ccc68ebb7b60c6148fa94574ebaedb9c5ce5eb1ad6
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                       a580a5b6a9ea6695449be144306d64cc810212727882
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                       c9ad296308a2d44d26816b1c942a3bc479979516a0dc
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   decapsulation_key = 0303030303030303030303030303030303030303030303
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   decapsulation_key_pq = 49b46321ef5a24c1c036750879c0ad29dd08607d4
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                           9db20
   decapsulation_key_t = d20034c38088ae9e3338d75e1954dd00001bda6103
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   ciphertext = f40d556d507802ebe7be0e65ab82b0aa9ff26c825d24f98148f
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                882e1996632584fce4356f7345abd8f480514275fbbd96ec6d3
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                eaf9d224005e050eb5f53d05f0a41bcf4f3c0e8771e84eaa46c
                e27b0438d4ce3ebf9eb25b5351643a26f607c41b6494ac77e4c
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                c3ec3caadf08b0f920667fae9ad18560edc3f8571986ca0bf1e
                f114d394c08ec5ff221e9f9ce7b6508eb6c38d6041fbe7319bd
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                618a078a128d0b8daf46e404eee4123b379a81680c8336036d9
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                a7859f7a0fb6475d53b4fd55236ecf4f33183c1d719ee10683a
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   shared_secret = b3db69cc0385b1ba716128b70bd4b93288f945f418cef51d
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   randomness = 6868686868686868686868686868686868686868686868686
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   encapsulation_key = 6afa82ec0b8e8449591cb9a11be36dc43146c18a6ad3
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                       5220a8a9c9633081aef104ef9abd4da0af068a84e7b0
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                       60bb6fae8ba88ea4538d088bea758f6f9a5c26a9c446
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   decapsulation_key = 0404040404040404040404040404040404040404040404
                      0404040404040404040
   decapsulation_key_pq = 79f1b2ce3b601ebf5ba31006e5a8e4c86cd58148c
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                         4de5a388fab8e60419b04710475367a0fa9c1397c
                         96d61
   decapsulation_key_t = 432eab0f3a8eeb77c6b0000b9292c6e163914078c9
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   ciphertext = cfe31862853164950123baa75549418c7a406cfb60003b825eb
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   shared_secret = 794e2f99d9a890c338c24a018035f8f51db576faf0cde96c
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   seed = 0505050505050505050505050505050505050505050505050505050505050
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   randomness = 6969696969696969696969696969696969696969696969696969696
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   encapsulation_key = 33393446a76c2c01b44da5696d8452b29ab7b9178776
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   decapsulation_key_pq = f7d6c6a46a9c534d6ee0532938a99f0c450da4935
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   decapsulation_key_t = 0a925a53f7ceaaa373f3f8ecf9c2d9eaeb351eaae4
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   ciphertext = 56a06e6443b53c24f647cb6798257899ea1c49cbfd4c4e3e54d
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                    aa6f2f41be8f46294d2e49c4b78409101c
   decapsulation_key = 0707070707070707070707070707070707070707070707
                    0707070707070707070707
   decapsulation_key_pq = d7b4cf68d3f1b711924ccded71a241faf8162f7ef
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                      fc5b7
   decapsulation_key_t = 19d62650372cc18fd0109cd6394d638ebeb5f4cae8
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   ciphertext = 892f7a7985caf0c231b2b35e3bc7de3e5a4739b72d3f9be342e
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                ecfdbed013a6bfcd4d1ffe5c4150e7257a9e7c0b2e0cbee757f
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                f321137a9ad5b27e344678a79e386e402236124753e6dfcba0d
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   shared_secret = 5f8deab6c11f05ee208ba968d28917f8219ba2c0c30d4165
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   seed = 080808080808080808080808080808080808080808080808080808080
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   randomness = 6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6
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                6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6
                c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c
                6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6
                c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c
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   encapsulation_key = 003180282264d14206367c682c2a282a58c114675507
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                       866b364a217c87e52cd28765ab18bf3c931a35150d1c
                       0c32c6b863872a23373057bec82e671986fad2cb15a0
                       6a9687a0ce923754138b4c54ba93c082c147cdf186c0
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                       42460722298e3bc2f0a612a22a986946737d057fbf3a
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                       d1547ea9336ad15315cd8a2919b7683b568aebe54b38
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                       36e14c7e6f31678c022b552b19a6b90b252a7122575b
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                       cab1d4d01cf4b492f136c9c4807b4a2479f35b255f23
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                       675cbc94e746a415bbdc912474042a93d776a89913a2
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                        e27c857910713376b859e392d0554a09c04d29aa8adb
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   decapsulation_key = 0808080808080808080808080808080808080808080808
                        0808080808080808080808
   decapsulation_key_pq = 08f68b3e03568d1e99c5c2167cf41dba4a6077557
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                           5ea72
   decapsulation_key_t = 76a574362e7f03f27cc6f4288e046d753df47649c0
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   ciphertext = fefebc6f6f4dab06bd9b8d0a3a688b06e4b3ce999cff7eb763d
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                f7306ee7171e3aee3a3d2d046bccc1594a9686a7749b906346a
                7c863d8dd34acced601a3953a05e8ceabf34797b4606eff63e6
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   shared_secret = f9d4fe89be29e5438f8ed2ee8d368c365e550b6336c55a4d
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   seed = 0909090909090909090909090909090909090909090909090909090
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   randomness = 6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6
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                        84761e071a973784b1c30a9358b76a7af10727f36960
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                        245982aea0b39c24a67effe65a91b211ad7334f8e485
                        8a3b7d0ef21b3e443c0cb64e089408006b103f3841ca
                        b70b046b98e2c8aed94ad683208e265424b077389c2a
                        c6571f216fac52e35cd280e51aaf6632816204c82a04
                        f09e4fda885db34fcc3be3ff41f95700e4593bf825f9
                        3ab30469733d373e450b125db222ab72f2ade96db31f
                        ee093fcf254511547ac1ca7e926778f133
   decapsulation_key = 0909090909090909090909090909090909090909090909
                        09090909090909090909
   decapsulation_key_pq = e4c190b41d18fe33b5710819eb4a962a2a6af9cd2
                           663d9766a4896481dcfc8b89687089a9797cf2f69
                           d058df1f690441dbccf3faa91ead65b8d4dfadd6a
                           a4912
   decapsulation_key_t = 00ee28df5d8544c9ea9a79badcf995f43af90ef255
                          b64b6ca0c8d194528f7152
   ciphertext = a857a7425c6077dafaef133c62869e523a4b41110cededea6ee
                66b9a6bba634d92cb41d5fbef2ccd6f5f057951fe1b44e224cd
                2314c9ffcdf4c358979d6d065f1f12a51033640c07965e6d434
                2afd7b57d528786b398e13b6eca581b96fe77778d73bfa2422e
                43093f7c96434103b18cbdf0aa6549da8e169b66f42921b89ac
                8267de35446008948d6026a0bcbe61357e97c7fe7a95337dfa3
                177ca6167c3a2af8dc38e3d708665824acf97d6d7b152bff781
                451c587a282adce031b3efa26b6d8bf4b49733c03dcc4300076
                049e278d3cd872174bc374d77038c75203ba45d30bd4110b623
                46c3f0bb1d8563d0e2d58cac839fa693ca96a56eeab1aa4d26c
                c95e013674eec4f8f08095059f081a0d4dfc0735653f3097f1a
                37da334007082ba6619844547e0d3296669eeceb02ecbf0c5c5
                a88d5d1c432398361529e0d91a628e568cd9a18cb3e8ca41315
                ccbd8ff9cbbc0677150f2e06274ec9e2733f3111cd4f1b900c7
                a3a80b517a7d6917fd0753f59e8bf03267e3a43d60e1857d492
                2cd0f14b6d28602792dbfe2b4488e807023ff4a8b65f75fe1a0
                826d5ff490bac7be071b9545f6e7ee758caf460e7e92e52eb83
                dcafb5bedeecf44a5f5ef23690bd83aa5ed2ce0420c697dfe4e
                aeff5d64be78fd3d9c96f66fcfbe015d8a1e75e93eed734c267
                fa515220e9937fdf8df271f69c8e3d6dec76152404d86243421
                1bd1e4b53cb9951c48b796fbf4287d3386c65217b41f2c414da
                ada2023c43c08f8b6edbecc7f750968c4f16c3c983a95d73c25
                d3cd4aac5bd5941fa376e1934436acecf9bb9bd4409d0944d39
                3d852aa15d6363bbd83cc24b1ea841e00b99dbe9f7b9fc2a415
                063865b43ecc9db0a95336820d40ec4d7325d5066eeb2a144ed
                3c27f5072c9a2e596d395bd069fdb8871521a08d0e9c1810467
                a271b4067a54d9d81eca8f26d18acb41a7de599aab1f79ddd01
                28c07e44cf2ccef72368cb4474db47ef43917940a80d05aea5e
                8c933a0ef8a8516a6dc2a50df273288d97a9788629f001e4874
                34e6a4192466e63f0e185810665267a021896967d833c1f1086
                45a5d17334d5dde8fd617c786665d7df9762b8ec0676af697dc
```

```
                a63e62b597aa2cf89c558accc872ce9a1277f88c5ac160b2d13
                a27de6b4027353adc3bf596d3d6527532e66225fa53e2546f6c
                eb240435bb93d10e4677208e990f622276d04ab8f2e4ce2e518
                0a436d33adbf29c2cef8704a41074ed16c164ffcd1c8f09a2f7
                52c098caab09da3db75d84ca510542c3adea1757a553bf53657
                f03feec803950747c8ddceeb31bd658072f01b7972df731af5f
                f53bf8a8361cc918c6a00693134fe6e385cc70484d2e3e6d365
                c14fbe6e2332eaf86b7afb8da619dd4c13e86f62ed63da3b998
                95d6ee47b440e16a3615f341d4be41239336b02017481968173
                2503f275bf8bc494c251e5448ff32bffb3fe0787482b796c37f
                d8d25a28ea78620046b192ce46fa4c798c0feed181961441332
                6eb373e622834afeaff81aff308caaf83504d31b9898e848b39
                6bc86cc55c519f1a0112595311ba37d96aa59ff464baf8885f
                3bdd10b1c92f0b286990048d58105a7ab5ec1755763ecb4d20f
                d1817d6b2fd
   shared_secret = a0071e94b4d0275ed91dfe4f3fe87dd4a534269c7a5991fd
                   c27ac31933fad24c
```

A.2. MLKEM768-X25519

```
   seed = 0000000000000000000000000000000000000000000000000000000
          0000000
   randomness = 6464646464646464646464646464646464646464646464646
                4646464646464646464646464646464646464646464646464
                6464646464646464646464646464
   encapsulation_key = 3d209f716752f6408e7f89bceef97ac3885300453779
                       27644ef046c0a7cae978c8841a0133aac4f1e1a70272
                       77f671219cf58b85d29c8fec08edd432e787a3cf9936
                       fe0026a113cb9efb1d7214049527bfe2141ea170b029
                       4a59403ab0ce16760a8baa95b823cbb8aacdcc17ef32
                       775223c791e3740163941f9bb3f63346bef1c050c31f
                       932c62719429aff14c2bd438ab135bed692d56c77c04
                       cbbffd6335b578318b513771e84b14ea821262141ca0
                       06ccb8bf2500aa1008970f216fe7f1ae34125aa29049
                       2c069a189222adc322f97649c762c7d3128ad3bb2667
                       971d0744014bc3b67445cbcd0b3e7ea69fb1cb9f9c33
                       1f97487920187292926d04a25a2650abbd44982bb0c3
                       c6301fe6a61330d24d8a3c7021dc3e3392c79a139b37
                       613bba67a2984298507b84a4d61eef18acfb979af2d3
                       9caa4c0db4513815359d76fc378c63a7f4f3053b1716
                       8d0221cf0c2eec5514ba235f81d04d67c3b5c5180949
                       17671c26a7c046457533cc32844581277a03eb065c45
                       29a779a9a5878f2aac3f81db9ed3d8c9345697058cbb
                       99d379bca16d8fdb61d129960390524791b9d3e501b9
                       00bd1e5002e095be06c23f1fb212f5801f24b6b28c0c
                       5493d246d02aa29fa3acfbe15ac4e212eb0b6f69ebbe
                       a259a2703aa4c308224bdb741c65c7a5d4bff7882795
                       07bbfe513d7aa5694e7b3cdf62ab36432742d4a0ca9b
```

```
                        3570ba742fa803b46989c8526ea586cc4fc32866143b
                        79601725fa545fd280b404530318bbc3371194710b6d
                        74beaa629eb18a36a953b75915ae96999ba5c88cdc56
                        a46861c50032c9b630bcc1445a30878979bc55a2c095
                        5bf399b231203b90c651b6afe0e242b5a543250b142f
                        7291ed753d816098f7913302a8ce91641716623d4fc2
                        ac6772aa5f3674042b7c4a18a2186289a4ac4e200774
                        596ca03e6798c7506b984999db6ac142586bae0799f1
                        e776f9f5247dc574d8556ddf9bbbc4ca3643263457f7
                        4248010d62d4311268360aecb4902b450bf2050ecb8b
                        a7a92820d233f5a14ed31225a1d17ca6f19e825894cf
                        b1807d922cbd60761134be419144bcf72006366a4460
                        137ad9136c113f05eb54c409520edc72e4150cc3a24b
                        0f819eec11bbd19ca9645b0810a60b4a8a9e9c395539
                        6a1653955b047bcf4f98433c27236c570d75f809e44a
                        af2dc33665826351872c293350ab324518c8c0c80b52
                        1c80c81a56bdc968a5650315a830c8bb17532c62ccc2
                        3b1d46412c256b224fd4674491803501d0143125c757
                        7239689965b6989ca561793c0f85c62a9e13487da176
                        62a7188c70b1040a67ed4c3f85e74e3691822fb96314
                        d6134fe6a626b3cbe1461d62a7b573b2cc75579ffa22
                        967e36ceb2a1aa0b71875a22751d706b72ca9ecd0c81
                        00ad0aa58009a5c83fffe91759e6baa0a9345af99fe3
                        b69509dbc84032868844ab3f65bb1df8beadf36442e4
                        8e339c967023a525411544c789a2f04dacd06ffef783
                        02210450b931f6b4c32aab34a3f5260b810f4c9a946f
                        c22d3baabaa80ba8d9955d6dc35e8609b4256b482cdc
                        9d8977c1a47a354e7c527fdb1672e166917b95cd6351
                        820261daab361f8a2dcbb240c55abd6a8105e5291b42
                        7b566d731e6b7047189cff20d8b120e0b3e72472d1b0
                        086812200fd3698e23f06e4f4e08bbb54cc2f63601b7
                        f85accfeea2d17964c66b5194b0f08e18519faaee194
                        e3c102823062
   decapsulation_key = 0000000000000000000000000000000000000000000000
                        00000000000000000000
   decapsulation_key_pq = f5977c8283546a63723bc31d2619124f11db46586
                           43336741df81757d5ad3062221e124311ec7f7181
                           568de7938df805d894f5fded465001a04e260a494
                           82cf5
   decapsulation_key_t = e00b3f9d338de90488973787b0916a4a9ae8bebf4e
                          2bc07a7bc18f1a62215182
   ciphertext = d81018a94f8078e02105beaa814e003390befa4589bb614f773
                97af42d8e8150796f2c88a4efca81b8cf93c0ae3716c54ec1b0
                45e3875f38c2dd12d7f717bd7fb701a9fecda5ed8b764c9a35d
                4a5c1d8930f6071f653eebb2d1afa77debb8302d16f17e0f5f3
                920a71a4d49beafa0e1c7e443f8abca64a65a9e81a97e7357bf
                902573363c0e1a12e5228036828e3f759121fada92441fe334e
                85d79347e470d2fed945541d832c54baaa3cb7526c3853954db
```

```
                4f73547cc7c27fd38398bfa7704952cb841e38b270e4db7435f
                0ee22f57d7ad3270bd0c88e71b4b864cf2277c65daa10a6dad4
                c7abecd95cc4ebec39c08404b522e4ecc1545713f76bebd3b5a
                0f2feb3461936065dbd13f6a1f61e1b142a2af2e5a482ba2c50
                cf0317049c0b3bfd6d5e9240eba9111d2030fdea17e33b65240
                20d30b0c4f8069285f3a6ca267d287d01e827d8422bf5426e11
                688bfc73756af1841b1c87e126cb50c914b5b2b8673488ad3b0
                74cad77a3840eb12dd688f313ee1e9ff8c479a678f276356fc9
                d65e1d5b4c1e9855b4175db144f7767c12061769190fe6b5e51
                563b91f94d131a2b796bd2980ed0dab4ae7a7110e920007a757
                158a5eb8662cbf89ddffe9d8196821313cdc00108853fc4746b
                111d5b56da638d8ed2973918960f5dfe93ead3ae521e957cec3
                c8d843e8fce234c70ad055177f235439d6098bdd771b1cfcfad
                aab4f50a7378185c62409f383c8ff658c2a2af66498cfd81e96
                2766ac6b774e88424fb4f331837d0a28502708477caf8780a15
                6d723f68fca791e1cd2397bfc2b24c77c765d9b2af36f732d52
                107517efd8157b283b440a613f756c364ca108971a8878199a9
                3f260baec3e850033cc032c2e53f823576affb4d3b116e2d160
                49152c35aaa263ab376f0ad5ede6a749607a283e3016e62191c
                0e8fde33e718cd989591c9a205d608d99fcb8a7471603d716cb
                01b56328d7d880aec2851f4e6d8b5016c25647e9026ebb44154
                3e8012dbfcf078d4012b8c39184dd64f3821b4774ae4e36365f
                8baf2bd1f6667c017a1e65ff8a1554458fb3f367c02721752bf
                a56fc7fd566ae95ffb208f919ef12f4cf8a2fdd141a8df559bd
                db7b8d1f04ee6d4cf7805d142989caf216dfae985faaab9974f
                6d9f8aa1129084db8db912b1655f595ffbaa66491ab4655fd73
                4cfd4bb0c0289d4bcc8fc5e9943b351cb147c8db059a24004d1
                c3e3bb4c14a881e5101acb736c65c5d579acb67ee85a560277b
                43338fe79d34b772c5da001da3b5a3383dd81319a0b4542e6d7
                e46eed5314cc70eb231de27b6e760db598ba19995cf69be0e44
                58e35f3f274aca2455d43fe3344e183c6dc47c857dbe9907b41
                e41006d91b25adcafc098fe66f7554be8dad493c4f4b1dbf7a5
                1464139db474afab5572f92a2232b59be56a72c0505149dae5c
                de1e602877037de7802b5f6fa47a4c9a3e52d6ca15339920254
                e9ffb53c7b834cc0288ed9905a1841e9390ea94a8898bd4c6b6
                d6027e4d43c7867242515bbeefe12340fc6b3d57762f8badb69
                433f9c6d060f85f5e5c6b6803a816d141c075f63541ad10
   shared_secret = e5ba94031ea6efd69c09c254f6d9783136ba6037e2d4c43b
                   cccf19d6f3f4343a

   seed = 0101010101010101010101010101010101010101010101010101010101
          1010101
   randomness = 6565656565656565656565656565656565656565656565656565
                5656565656565656565656565656565656565656565656565656
                6565656565656565656565656565
   encapsulation_key = ec7b50cddc8360f98b189bac73d395ef947b37d84538
                       86a253269f7b18b9eb78c1b63212471a0f979793f993
                       6b3f496f4b5394ea69c2a35729f91c688f6bbbb864cd
```

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5e87108676c4014c2ba98204f911becae33a71e832ac
012bb827578810955f8c6e2d26c0b17b7ba574990884
546ba58bf6785721f3854f434cfea602e8595c71642e
8d4c70934b7e54c638f5a13e1a136bc86565e6b40abc
163ca65650baf953de7bb99b138ac1b695023103c9b4
17853c9d42e54fdb816174659d85a783e3d4613db1cb
baa63fb667a4a636804b6c4ae821ac5d6556688bab1d
c10d6779b485c63c0ddacb91837c4ff3402e62141880
72b4186a39c65bde524c683c95d3c8b65e37104f551b
6a3602eda50b787182d703ac6a221428b4553e3b99c2
b251ef642e31256c329b21d1246a71456fce700d7f50
cfe5390a1c37bc133809f102c22914a1402c205c0512
b733afeea04411ca5ebb0bca9392b1ee23935eb19602
4732daa2a1f79358e6e74b73c965a9e74778dc692144
2b19328f6216a5e814ccc0639a863a437a614def5a61
f38852151011b04a37bbc78c1eba4d8d1b3a1622a0df
f74d25c731abb2a5fe5919f835bd3dd97330cbb7dba0
b74260c963402160c4017d92256a3713c9e77ea0f490
1accbd38715511784c9ec287dd85a769e081854b32ab
a9322a3840f6065133228c41851afcb40ea509cfbb86
145fb8853ce14c649691136b8660b0077f3b2f9da82d
483c1414c39a9777665899131a8336fb828480986df1
02628d10b54239cc20231457d4bbb7016f76029661f1
4ffd3532e2f8494e1613430730ab915683c3c8c4db2b
4373a3057a097e23333605398b15cc4d6ac3fbd0732f
21026bb0cd51fb738a740467114e7c66256b830022f2
8c028392cff8013d617c77a47bbda11c4a522f8f2b49
f2822cc06338605671fca4518df9b3c506532c9cca31
75330f8733ce11cb3fd8b95239ceebc9483cb68bff43
b622911fcf4a9c57c226caa38bf0b081535999f57301
6b14563ec4826dc281dbabc633868a1d903d59207fc6
62a293735085c01f40b5b56cbb795ecabfad709d611c
ac73eaca579768213c18c969c59be58fcef6bdd8a851
92907cd0773f81eaa24be07e0d620e9685acb0c6b0f5
4b47dffb510384241c4b733fe08dacb2852b2b74cc01
4e974a5e9db35d80d7b83ad31da1487a0170ba7fbc1c
551a6f1eecb572084180b256962748d5e3200b731ac7
c3928585a153b167c92a48cd91668c773707c054af16
aa7bfacaa161a620600e8d08cc97601a53391da0247e
5fca60cd1bb65ec0417177a9eb78cde5aa1dfae34e94
8417b3cc0b223803f5f40e8ae3a382848ff80c418582
4076423ae4c137bd30bd81f04095c20a01e0a49f664f
8f2b7f6bf6a990993cbc0596a514ccebc578c6418e82
5903ae11ac52831c6a48c67727409ed7274eea03eef3
2094271b02d4535563aa4924a2666871a4b690540c78
b06043bca31ca4e42a03650ecab74792017217d10615
d0acdee124e3222c90d79362207e4f7779e097501cf1
40b1a3431ee0cf27b23a50373d59976d82b5b1ce165f
```

```
                      4aa1361157afad564081c85777584dd6058a1a4663b5
                      3234d7264fbac6877351d1928c6780f77d4720933727
                      1e305370df9aeffb74d7c75de55c006e2b2a979aaa76
                      aaed9e76fa61e2a0a9aff50c054b3f819ee2da1cc913
                      4008b9f5ec05
   decapsulation_key = 0101010101010101010101010101010101010101010101
                      01010101010101010101
   decapsulation_key_pq = dbf77c8d79c80ad6b0763d42a3fe53f0f1dc03022
                         0c2e3fedc2aa903abfcad08330db4ba490ccee095
                         988d9355e816055cf986e280532d47cc19f2240cc
                         23419
   decapsulation_key_t = a20315485f73a3c17e18a3f155ac33e9a980896b2f
                        17dc7f96a9495d95840560
   ciphertext = 600ecf4026683898d0e339eeea9ebd437a4a802952bf32bfa32
                6b48eb74946d0cdd5437e70df4b6b7acbf79efe60ddcde985ac
                fd8c2d23775e1ecc54eb6ee03dcc9b4aac150172737831adfaf
                0e63a4782bad2a785b9c39bf5e34640ea3da447efc2a03e23a3
                37ad1f542c32c2eb46f7b88d0bfba87d8efe8cd4456e6f21bee
                bcf3dd502b53d537395750ce963d289eff74621545d4a5d9262
                bd14b3dddd4ef880e65cbe8f2f8aad826f57f727a60aaaeee8c
                69e89af6c539fd4f267c44bee8b5385a460a7c8e4a809959df8
                6c1136ee23e7544cfa7524c6c04ed9ec29aed307b5dfd0108f2
                9294aceeb517a098b8cdbad5911bc75e96258bbf38a20288c69
                11b2346f842c0943bf8e9c34a0a8e518e92c8761c6efe6b1d3e
                a8aed9b2c4feacfbf3559f3a5e46e4dfddf81936183d4d1f9c8
                c1616b14db2057435ad71655d743fad4987a19e821d0ac666ff
                3e46b7cc0e90b85e1966962279a48afe2e9bbce89c819a8ba52
                476af074a071495398bd497f4d4f34026025452975cfdaa3e7e
                183a962bda009108221ecb20d218c42e38774019d2dc3262127
                8b5e88f99b62a9e746d16c1691ccf3e7e9185c3c493e7617f45
                1f632c161fbe6d8ac3217f10ed4bfeee47e4960ec4a53e4852c
                a02415438484220 44a67567a83e09d8e74b9d11af17d53c4956
                5ca53deda7c4df076a3e1b6368b1931d81db93e87f75bea6924
                a321376fe73b5a5b07b80a98dc3ab8d14732540f1b4b7176e27
                4a905d453eac1caafe2bfe4e6c904556ca91b01b2302215ab3d
                fe6b49f46963df632a9e7cb8439cd5ee56a1f8e2cd3faae5d8f
                3462d0ff931f5038cfa70259d963163d6163ef22b0c32081bff
                2763e98da87817048d4ce755e5d2b1cfe7d6eeab0fdbe766c95
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   shared_secret = 750300db25bff9620e893c2c6fcab9bf04d7f2e543b5b394
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   randomness = 6666666666666666666666666666666666666666666666666666666666666666
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   decapsulation_key_pq = 971619c09e6627cea855bbf7817dd36cdbf7d2de9
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                           86fe9
   decapsulation_key_t = 96141896442e2dca19ab5f49cc2450f804fa3eb949
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   ciphertext = 413c55d5710bae6376761dada807daffd4dc45f9f70d825e0d4
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   shared_secret = 87292f18b2e7af74bb8839ddee15e832d2f4bfac14dc84f8
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   seed = 0303030303030303030303030303030303030303030303030303030303
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   randomness = 6767676767676767676767676767676767676767676767676767
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                       2ae7609bc803a8f927dcc2c2033cb07ba90fc8b06818
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   decapsulation_key_pq = 49b46321ef5a24c1c036750879c0ad29dd08607d4
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   decapsulation_key_t = d20034c38088ae9e3338d75e1954dd00001bda6103
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   ciphertext = f40d556d507802ebe7be0e65ab82b0aa9ff26c825d24f98148f
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   seed = 0404040404040404040404040404040404040404040404040404040
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   randomness = 6868686868686868686868686868686868686868686868686
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   decapsulation_key_pq = 79f1b2ce3b601ebf5ba31006e5a8e4c86cd58148c
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   decapsulation_key_t = 432eab0f3a8eeb77c6b0000b9292c6e163914078c9
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   ciphertext = cfe31862853164950123baa75549418c7a406cfb60003b825eb
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   randomness = 6969696969696969696969696969696969696969696969696
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                6969696969696969696969696969
   encapsulation_key = 33393446a76c2c01b44da5696d8452b29ab7b9178776
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   decapsulation_key_pq = 749fe3a6fc429b2369d9e8191f72d4fd3b292f2f1
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   decapsulation_key_t = 730def4e090b60c056e1a9b653f479af7398bea957
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   ciphertext = 6dc476cbc91fa3895cfd69bda5799b95b7c0dc87e5c78dec9b3
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   encapsulation_key = c3f9a6305222862c2c89ec0dbd805c547b2120405ba8
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   decapsulation_key = 0606060606060606060606060606060606060606060606
                        06060606060606060606
   decapsulation_key_pq = f7d6c6a46a9c534d6ee0532938a99f0c450da4935
                           e2953c4daea5d5b0a59ea69c700a40817fdf445dd
                           5b73ed69a557afa27839191b8e71214ef9ef97e9d
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   decapsulation_key_t = 0a925a53f7ceaaa373f3f8ecf9c2d9eaeb351eaae4
                          dddecbd7eb180b5432306e
   ciphertext = 56a06e6443b53c24f647cb6798257899ea1c49cbfd4c4e3e54d
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                3247f1bbcb728d8cfd59b59d6995a2430ab14490b336ac502cd
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                ab06e36fb1c9b21c06115fe42beba15083385764cde8c527c36
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   shared_secret = d11018de4d36cb4544612190b4613a7b76c703fc4cb782fb
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   seed = 0707070707070707070707070707070707070707070707070707070
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                6b6b6b6b6b6b6b6b6b6b6b6b6b
   encapsulation_key = 0e12760b95266a50a52bc6ba3df697c1261d3ba51098
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                       efc38d23053ea6d754c550cd5d1936d4e74ea047c4dc
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                       a573451dc746bc491c143d14837af83c4f4b1f5aaa59
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   decapsulation_key_pq = d7b4cf68d3f1b711924ccded71a241faf8162f7ef
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                           fc5b7
   decapsulation_key_t = 19d62650372cc18fd0109cd6394d638ebeb5f4cae8
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   ciphertext = 892f7a7985caf0c231b2b35e3bc7de3e5a4739b72d3f9be342e
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   shared_secret = eae6cff2b4d6971efa91c6333986693db4f5c46207af27ce
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   seed = 0808080808080808080808080808080808080808080808080808080
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   randomness = 6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6c6
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   encapsulation_key = 003180282264d14206367c682c2a282a58c114675507
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   decapsulation_key = 0808080808080808080808080808080808080808080808080808
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   decapsulation_key_pq = 08f68b3e03568d1e99c5c2167cf41dba4a6077557
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   decapsulation_key_t = 76a574362e7f03f27cc6f4288e046d753df47649c0
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   ciphertext = fefebc6f6f4dab06bd9b8d0a3a688b06e4b3ce999cff7eb763d
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                21bdb85ddba1978593aa56d961ede3a707e7b0bb6f325229ce7
                54c702d9ebc35a2663c0ceec6b3d04ebd91a63854736ef4b601
                495c26aa4927b9ccbae3adc808b32571ff32288d46c2967a96b
                53e756027d5eafed7dc8d7d5337f98309ffd1a300eba2c02221
                a3f100b68cb066861fbcb39252ac446c3ed3a9639708fd866e9
```

```
                fc0bfe4a7aec198696aa13979287dcf1fdcd143a44a78cc6006
                beba2e1ae70e8e857764d233e54830473fbbd2b173a34c16c20
                32d004fe19d35d8a5277824260f32ae501e24592916ea46ec14
                a9bc301fd0c900e33a1b24cd153a25afaa34ee26cbc9215fc6f
                a18972714aab79b72939b9f4d3190b9bd64282c0e630b6d8c67
                55d291e33dc3cf6b6a740b565b1cc292f2cef3b8cc6a6f13a3c
                7b06525e4e7897f63c82502f7fd77bae5a80a63c7436fdc8387
                787ee34a000ac1512c5bb3820dc6a9b49ecb1b04fb2b34113e7
                5b7e22b6b8058859d0d2a505af21b5fbbf10eff906dde67
   shared_secret = 83ec9c8227c5306cb0e60bdf12678a5de9e24fe51855290a
                   64f49e9795415661

   seed = 0909090909090909090909090909090909090909090909090909090
          9090909
   randomness = 6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6
                d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d6d
                6d6d6d6d6d6d6d6d6d6d6d6d6d
   encapsulation_key = 460393d6222435d92a68eb6b2384ae414ba04199ac14
                       e561f6711facf87180a4af6156a5cf589c8ec7983054
                       764231646f07c57ae4247de37bb73758a60b4d333498
                       5238563005ab337c6075b81416c241fce764505acd0f
                       e7b0fbb859e4172390e670089414107549ed298bca65
                       8a229079866b8b960a7c7fe46cc47a1773010f106b6f
                       5cc9c2f906465851a7716649b6a67ff073807cfc7be4
                       cac44cd1af6a372cb04161d4d39861780c6f62051dfc
                       c39c143dcbe49bbf5b58a8769b927173e4c7096c9131
                       0a91484cc80c55217b76124d0db0965f84bef016040c
                       f19947d61e05a14f322bbd918392f5083be540a122a3
                       b1d7bc7c49a868f6384dd5259850d427166752bf286a
                       3ae729e3a5a5e76209de5b9c0783a4c70504a338af3d
                       178ebd114b7ef700cc17919b258682d21a1244a002fb
                       ca209a80cb2a94e4476aaeb7cd002929ef999095c893
                       624667ae2bc8712b20e35815599196de478f674b50e2
                       8313d7695ce2ba3dc02594171a1ba7a095a4351a0f33
                       06f51b4c09ccafea587693a9519f4b4976260445421a
                       865a400a63b0a03a8d9a35ce3335bec1912460e1a5b4
                       685f8fb039a5cb444ca21f87c522c7e6554f29007c05
                       62e5f02eee849f29d39bc15b58ff58b252581adbb17a
                       42f2357ce62746b1347a4123d02aa5c3974eed863eb4
                       f309c5b265d038aa6f994e8de94da384321fc65bda70
                       4a15216451465f9d44b7e8a9b7e6d356e8a399e7eb39
                       d0b46d85ec0cc93c56a6d570c9a8865aa6c74f358ff1
                       c03b80042567796c41f418747126bb4ac29d738372fc
                       a1a9646ad6e7901581c6845c91c3989058a82bd80117
                       e7c73bd2da15cff522fbf599fa6840317608e410b52b
                       4c477827877ff612cf89cf6c87c8a72b175b6c8627e0
                       a10b937cc672c1af54b64328c733c22585b88c54d30c
                       1a22bfb6a2559b178db7a0aab6001ddac9250416ae5c
```

```
                      11c0a5a26a09d38518b28f8e3a7f2eb51e0d679f1d92
                      8b77e103f4fa6218f68a1de0af5ea0bd1a26bb624879
                      ab47a28e9c40042b29cbd678f7ab65353807d41993bf
                      e11607313430e5aa8c27b9af3a5f10531aecb1a1c371
                      0f2b992c99b604f7b2a3269a49091a3a56dc8b78487a
                      d9ac24e36c97d351855ee1715083a3e9c32f52f735a7
                      6cb008714fa83bc70e4caab72c485ac8431cc97cfba7
                      27fcc0af9c542d7d9199bc4b50a9ba83db77c7dc206f
                      da0547e2795a8dc36fd1b33d2ddab089d95eb16b15da
                      94a74ed8b7e8daadf8180721e0a1e31002497c83ce17
                      47fbe78cac291ffd967f23f47a8a30485aa352cfd4c6
                      907cb8b201bc3b9281eb51985e11cbb4b5250ef7ca13
                      c70674f395c52b177541b57b3aac77e382d5bc6e0c32
                      aade73c74a163c0f43a59c616d76393f39166de8318f
                      ef1b2c47075c19885ecea7b4acc674d1c72a2e4ca70d
                      28325f12cc33ac19aa9c5e5ab31c7ac6933c1a0a7906
                      5fa1e0237cd90a13c7b759980262378d4a17b85c184f
                      84761e071a973784b1c30a9358b76a7af10727f36960
                      f21c6e078d33fb528373a436fb237f87317b81c04926
                      245982aea0b39c24a67effe65a91b211ad7334f8e485
                      8a3b7d0ef21b3e443c0cb64e089408006b103f3841ca
                      b70b046b98e2c8aed94ad683208e265424b077389c2a
                      c6571f216fac52e35cd280e51aaf66328162012edaa8
                      8f37a3f6e9c0c89861d6df5d8a3a453cca19d8746cdb
                      ee424f00c338
   decapsulation_key = 0909090909090909090909090909090909090909090909
                      09090909090909090909
   decapsulation_key_pq = e4c190b41d18fe33b5710819eb4a962a2a6af9cd2
                          663d9766a4896481dcfc8b89687089a9797cf2f69
                          d058df1f690441dbccf3faa91ead65b8d4dfadd6a
                          a4912
   decapsulation_key_t = 00ee28df5d8544c9ea9a79badcf995f43af90ef255
                         b64b6ca0c8d194528f7152
   ciphertext = a857a7425c6077dafaef133c62869e523a4b41110cededea6ee
                66b9a6bba634d92cb41d5fbef2ccd6f5f057951fe1b44e224cd
                2314c9ffcdf4c358979d6d065f1f12a51033640c07965e6d434
                2afd7b57d528786b398e13b6eca581b96fe77778d73bfa2422e
                43093f7c96434103b18cbdf0aa6549da8e169b66f42921b89ac
                8267de35446008948d6026a0bcbe61357e97c7fe7a95337dfa3
                177ca6167c3a2af8dc38e3d708665824acf97d6d7b152bff781
                451c587a282adce031b3efa26b6d8bf4b49733c03dcc4300076
                049e278d3cd872174bc374d77038c75203ba45d30bd4110b623
                46c3f0bb1d8563d0e2d58cac839fa693ca96a56eeab1aa4d26c
                c95e013674eec4f8f08095059f081a0d4dfc0735653f3097f1a
                37da334007082ba6619844547e0d3296669eeceb02ecbf0c5c5
                a88d5d1c432398361529e0d91a628e568cd9a18cb3e8ca41315
                ccbd8ff9cbbc0677150f2e06274ec9e2733f3111cd4f1b900c7
                a3a80b517a7d6917fd0753f59e8bf03267e3a43d60e1857d492
```

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                2cd0f14b6d28602792dbfe2b4488e807023ff4a8b65f75fe1a0
                826d5ff490bac7be071b9545f6e7ee758caf460e7e92e52eb83
                dcafb5bedeecf44a5f5ef23690bd83aa5ed2ce0420c697dfe4e
                aeff5d64be78fd3d9c96f66fcfbe015d8a1e75e93eed734c267
                fa515220e9937fdf8df271f69c8e3d6dec76152404d86243421
                1bd1e4b53cb9951c48b796fbf4287d3386c65217b41f2c414da
                ada2023c43c08f8b6edbecc7f750968c4f16c3c983a95d73c25
                d3cd4aac5bd5941fa376e1934436acecf9bb9bd4409d0944d39
                3d852aa15d6363bbd83cc24b1ea841e00b99dbe9f7b9fc2a415
                063865b43ecc9db0a95336820d40ec4d7325d5066eeb2a144ed
                3c27f5072c9a2e596d395bd069fdb8871521a08d0e9c1810467
                a271b4067a54d9d81eca8f26d18acb41a7de599aab1f79ddd01
                28c07e44cf2ccef72368cb4474db47ef43917940a80d05aea5e
                8c933a0ef8a8516a6dc2a50df273288d97a9788629f001e4874
                34e6a4192466e63f0e185810665267a021896967d833c1f1086
                45a5d17334d5dde8fd617c786665d7df9762b8ec0676af697dc
                a63e62b597aa2cf89c558accc872ce9a1277f88c5ac160b2d13
                a27de6b4027353adc3bf596d3d6527532e66225fa53e2546f6c
                eb240435bb93d10e4677208e990f622276d04ab8f2e4ce2e518
                0a436d33adbf29c2cef8704a41074ed16c164ffcd1c8f09a2f7
                52c098caab09da3db75d84ca510542c3adea1757a553bf53657
                f03feec803950747c8ddceeb31bd658072f01b7972df731af5f
                f53bf8a8361cc918c6a00693134fe6e385cc70484d2e3e6d365
                c14fbe6e2332eaf86b7afb8da619dd4c13e86f62ed63da3b998
                95d6ee47b440e16a3615f341d4be41239336b02017481968173
                2503f275bf8bc494c251e5448ff32bffb3fe0787482b796c37f
                d8d25a28ea78620046b192ce46fa4c798c0feed181961441332
                6eb373e622834afeaff81aff308caaf835635de5eb039fc126a
                017b9e789e1db721cdd51f7ed3f5515d18e2f4e2dd7851a
   shared_secret = d1b5f13316ff420d4ca22c9a8e3f93d27f735d1da53ebc97
                   9cce23f9747e3261
```

A.3. MLKEM1024-P384

```
   seed = 0000000000000000000000000000000000000000000000000000000000
          0000000
   randomness = 6464646464646464646464646464646464646464646464646464
                6464646464646464646464646464646464646464646464646464
                6464646464646464646464646464646464646464646464646464
                6464646464646464646464646464646464646464646464646464
                4646464
   encapsulation_key = a10bc8b554cd51980cdbbccc3041420fd320fe8b74c7
                       a84278c63c17070dc231b61ab269b9d677d920261186
                       654b4571f51797d5c342b8070bc6c92bca16adecc631
                       e4e94c7508b111730c749c73e2d6a6f97155cb269ccc
                       06a71a21bef3d269463c935048a7f4636c7b32007370
                       9023f7b04d0530571a9a6f718280870bb63875d3f599
                       bc229b95869cd5bb5d26640856d40b828198fdf2c099
                       998ffdf772e462336c521cd326b5e4997bd95c135c57
```

bd02c7afa80a2923d510951778ee5125b2aa18f90445
453b85789224725b259279698ac9426c882baabc38d4
fb3a3f6831180918b9825e0e418154d78aebab5e7e70
66e69b2567476bf1177fe079a38298be6f01b098c338
51ab25312b52e32a5750c2b73d293c0b810473b310aa
f062f19914c7377b2e90388f575bf5e6853453b95a74
aa18d62d4ae37e6996a48ab5217488a92d7b01e315c5
0b68204143792afc4f8367c0ce065ab32014bdb5515f
e0594608aad1218994724afaaaa2df0355f46666b6e0
2a387b6d3da4713edb610bb048c3a2078b800e9ea483
f2009c96d24c71b2cbc8e1200c0277383c5c27895e29
8c3607701ce58702a91903274a041408234cb0021ef2
b1c5131419b444dc84b89d147d1fe43c43f676d90673
5d9ca2a59c2232d97fd4aa1ae2bb3d1b170ca553cb25
74954fdc6689fac623cbaa31982d82424d5a564fef7a
8ba51b44df15053b2b45bec4aa1ed49929123daf7541
75c5938258c608b24d062042ab4bbee5e553a5ea6275
21738ae5ab2e06bd98b020787b2f5fa51eb4c46c2bf9
0e55a49560340667f88ac41432b7f551dfd98c037c79
f79b41b985a8b1f51345550cd816714362040778c43e
378a288394bd028c8c31b5a904bc4a5648a596035cb3
8f0e276e12c9a96f8425056b05a136642dd2cb754630
36485ba1a50539e420e1e31dfac529cad6c68ec06746
749473e050a4ac92b7199beceb239b6c12c8e716b666
07aeca64a5850b01f99d0b176a7759781ed77cb1ba40
d17ac5c6cb06c942c002c2cf6efcb121f10ad2a45ff7
81426e7104cbdca73b81865ab22b00ba834355ae485a
262f354248932c2be178369a3dd7e2428fdc379346ab
2b754c43db657460cb09c5c48b5810cb7a5c6156cf87
440c9e36a4869a8ac458b382fc178915a9ce1bcdda7c
48807c207e656ffb80bf33e32bc8c7b20ef60572612c
eac99ad1c56ce5a764b29b74c17a5b510b1afcb18a1a
fc35c12ac213725325f9b7a2eb338fe4c0080c31a58a
995db7027d900e78544887f90ada467d0e383c119c53
99310bc6735874e8804ff6c2bae57f2c3357cb627033
c12a5924b20ce5abf113172bd2b77086cac543811793
bba71734c9f005ac2656460bc30a442b388725758a62
3e37ba6e293abfb84f344229f373c214ca776a7c05ad
c465fed93b9cf77f0022ab71f1adde369dd8f420a58c
057c14cc18dc47da7c12b086473eab419652967001c4
e42a381c8ba539a875d21a9945133bab9bc1e53a600d
e77cbfb2aeab6b19ced4c6eaa8998ee6a1577255f713
2d80a32d6c0c6ec44c9c4b28699a645bb0bc958e0027
5077925309519b0824c7000dfa61912ec049063a067d
00b059053e508a5bfee63473869c8a8510af898cd757
2854f5c38af96f5f97a7372632ea7bb4b6fb831c612a
f71191ff9806b379bcd43c6059b7b1f953741444af71
3c155d962722b947aa23a32a89b356a6a7508aad6396

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                        8c1dea78ff18aac27a89aa7b42b0d7481dd3cc649421
                        e51397782218ac5441760ba51a0328d66b436fec32d7
                        aa4d68e0cad1bc14f7241c903480f809983fc2c30d93
                        138cf63b59bc737ac08192893d039187a811bef3d320
                        9eb7b8d1e05b5b251cef760a210b2732867ab32049ba
                        3c354e3858aee7b71df79292473 0d8e842e484122b50
                        677b0a306e61cf21b62091da18b937192936a09e5a41
                        8cf78b666157dd477af1c36a12320129522840e37094
                        1157808782a5335b0ac10d70e1beafd401074b84b982
                        6cc58aad217bae0f419b2da896133272d8f22c6f420f
                        cc738fccc1082fc93c7df0994c6bcf2cc8a29037b6bb
                        2b4bcef4b0ee8caf8506bc5ecba082a56806c1cede0b
                        944338a69a668254c1150ae05030e256b2b67661ba02
                        7d97576da613ac8c7c29051f1240b96b0c127e264d5e
                        1dbbfe9561a567d5c9103673b446b3ccea6c5f7f34f0
                        9348a5d4a58b0498871dc940ee97b50c0336f9a60c32
                        99f99560ac70657a27befa702265ce590583e04a2832
                        6092d3dea2118dd1df5e81d7d3014ec4b5ce67dcb45e
                        f001769dd5d5ada76934d38d740924712bfae672169d
                        8f8744c151346d285fbb653f83aa0f
   decapsulation_key = 0000000000000000000000000000000000000000000000
                        0000000000000000000
   decapsulation_key_pq = f5977c8283546a63723bc31d2619124f11db46586
                           43336741df81757d5ad3062221e124311ec7f7181
                           568de7938df805d894f5fded465001a04e260a494
                           82cf5
   decapsulation_key_t = e00b3f9d338de90488973787b0916a4a9ae8bebf4e
                          2bc07a7bc18f1a6221518238c5c4b1760c4ea8a9e4
                          7beb174f12d2
   ciphertext = dc63d18bb9715fb6e3ba71cb439fcd3377a75305cc9b144e675
                8bf5794a272e6b4a0da33234c0ac1bb5b4e60e4c82eb1fb780d
                59e4e4616641a0595ba031e3ae69d971dcd5fff14e21731a8e1
                a221f46c7820d214630b707fa1b0de3a484698f3d49e0a75f12
                12b8c42d330dd909f15eac0402f19ee77fba9447e1c44304b0d
                8c371c17c5549fdbdec1e0a2e7be9f577d7a4b5b2618d9ba67a
                b95a0297cd5c5a13c89cc5a57cbd9a8ae38d66455c9a3d2bc55
                b498775fee2f6dc224d376d5f526a8354c8ed724f60337e900b
                85627972383e1fd987d407a8834005814a4fdc94c947e5f3471
                459288cfb127952b3208f10c914200bbaac5fcebd2bc9e28484
                92bab17b9288ca8b81d1c2ac9522dcc0b6d5f51e10f3afbb5d6
                5fbf919edef6323c4e92c6b0690c10db25a9182de9e919ea1b3
                e65ae6150635d5180ebd7d23a2264828bc3ee1fd34dba1924ad
                0db30c747e05baa9148f1a032769c685e04665fd802a79c4624
                f69a9198a426eac1b217d903cdacf8844e73365f3a219a700dd
                a27edf6bea33602617c5fd105b301b884bfaaa1163b791ec09f
                82523fef65c87b75ed063ceb127729b82c8712e1f41b547d095
                f55ee71f3f8b47a306cb5d9bdd817854c74a42eebf934a1136d
                ea3fbc546ad8ce51b3171913722f08b0261d197590342bfe410
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                8dcb08c62a98610cbfb8d3b2831f56dcac2220e29a5811f38f0
                824f21a6cbebc64fd89a09b110dffbe03799ffc74fe565c80db
                f6a66acd7bfd14cb90acba03405a7982d4c1c68caa75f8b72e4
                dd6401d7dce4db4f6b820a7886a604b66b4e5b9eea5e5eddc2b
                ca458a25977bd1f02874c5d9daf2baf56b3040f24ce7fe14cc1
                4d61c7960db4decb37d9779c8e36d69a7763066d8c1149312d2
                6887a693dc222daa892dd00cd8f3a558cf605e4c65c011c2e9f
                0d671ba10af2bb90ee0351ae5078eb7878399ec9eb4ace87a68
                269618bda12a7aed6fda0385496c5d10ac36b35255f4a31edfa
                8a2c516b65c63431013ed4909ec7a787a5efb9d3c3887b80ac1
                8a44934b6559bd8a84b18e86fa1b0b9e1d9f92ba495ba5595d8
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                954c37219bff4a49894a8aa37f940a40f4ec942c281e6c47ea4
                08199927a724ff1c7460fc8fd47a98d0c9d4d1f07994d8084f6
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                9a128a2face2d4a02951533a25e82fe63d0aaaa2e8c75150215
                c93ab06c22f9cab8d1cae7424f8baa09b3260ecfa3c7c8d55a2
                76b4b317f72ec86b1b145a63aca83ef8c1204d8ab0c96ea3f74
                2de39db47020616e139285814f188029ace4587f14cf12b5ed8
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                58d0c4eaf992bd7dbd5011b700a5fa63dc1b24a84a3c80656ba
                b5705dc3a74312c80e8bdb24a7ac6e27bcb8c07ece62c6e5777
                dd3dc0657181f440c7524d907dd27950bcb252aef7f8cbf453c
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   shared_secret = a75ad7dfa8fdd4756fe5c0bdcf287e258562c5b3b394bfd9
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   seed = 0606060606060606060606060606060606060606060606060606060
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   decapsulation_key = 0606060606060606060606060606060606060606060606
                        0606060606060606060606
   decapsulation_key_pq = f7d6c6a46a9c534d6ee0532938a99f0c450da4935
                           e2953c4daea5d5b0a59ea69c700a40817fdf445dd
                           5b73ed69a557afa27839191b8e71214ef9ef97e9d
                           9bb99
   decapsulation_key_t = 0a925a53f7ceaaa373f3f8ecf9c2d9eaeb351eaae4
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   ciphertext = aa5a25b8315b9e6c940207124c6f2ceb59a295b7683fd6762d9
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                b0b79f815d3ef0f9e2237f23e601acbf3b56725bba4f158fef5
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   shared_secret = 8f81b7d72b0c023dbe66df377cfaed177c7516a06650aafe
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   seed = 0707070707070707070707070707070707070707070707070707070
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   randomness = 6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6b6
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   decapsulation_key = 0707070707070707070707070707070707070707070707
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   decapsulation_key_pq = d7b4cf68d3f1b711924ccded71a241faf8162f7ef
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                           fc5b7
   decapsulation_key_t = 19d62650372cc18fd0109cd6394d638ebeb5f4cae8
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                          d26aad4b6a3e
   ciphertext = 4dc3b02448f339df1362f71a0929acbdfb2a0425f54adc2f98a
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Acknowledgments

Thanks to Chris Wood and Britta Hale for contributions to early versions of this document. Thanks to Filippo Valsorda for the ASCII art labels for the non-X-Wing hybrid KEMs. Thanks to Mike Ounsworth, Bas Westerbaan, and Chris Patton for independent validation of the test vectors.

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