Microphone Control Profile (MICP)

***Bluetooth*® Implementation Conformance Statement (ICS) Proforma**

- **Revision:** MICP.ICS.p4
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- **Prepared By:** Generic Audio Working Group
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Contents

1 General principles

1.1 Implementation Under Test (IUT) identification

Using the Bluetooth SIG qualification tool, the implementer is expected to declare details about what will be implemented.

1.2 Enforcement of inter-layer dependencies

This ICS includes one or more tables with inter-layer dependencies (ILDs). ILDs are used for specification requirements that are dependent on other supporting specifications. ILDs can refer to an individual ICS item in a separate layer (individual ILD), or it can refer to the full layer (full-layer ILD).

ILDs residing in an X2Core layer will be enforced from the Bluetooth SIG qualification tool in the following conditions, depending on where the referred ILD is residing:

Referred ILD resides in	Individual ILD	Full-layer ILD
Controller layer	Core-Complete configuration, or Referred layer is supported	N/A
Lower HCI layer	HCI is supported	N/A
Upper HCI layer	Core-Host configuration, or UHCI is supported	N/A
Host layer	Core-Host configuration, or Core-Complete configuration, or Referred layer is supported	N/A
X2Core layer	Core-Host configuration, or Core-Complete configuration, or Referred layer is supported	Core-Host configuration, or Core-Complete configuration

Table 1.1: Enforcement of an ILD within the Bluetooth SIG qualification tool

2 ICS declarations

2.1 Roles

Table 1: Role Requirements

Item	Role	Reference	Status
1	Microphone Device	[1] 3	C.1
2	Microphone Controller	[1] 4	C.1

C.1: Mandatory to support at least one.

2.2 Transports

Table 2: Transport Requirements

Item	Transport	Reference	Status
1	Profile supported over BR/EDR	[1]	C.1, C.3
2	Profile supported over LE	[1]	C.2, C.3

C.1: Excluded for this Profile IF CORE 41/2 “LE Core Configuration” OR CORE 40/1 “Core-Controller”.

C.2: Excluded for this Profile IF CORE 41/1 “BR/EDR Core Configuration” OR CORE 40/1 “Core-Controller”.

C.3: Mandatory to support at least one.

2.3 Microphone Device role

Table 3: X.Y Versions (Microphone Device)

Prerequisite: MICP 1/1 “Microphone Device”

Item	Version	Reference	Status
1	MICP v1.0	[1]	M

Table 4: X.Y.Z Versions (Microphone Device)

Table number reserved but not yet in use

2.3.1 Services (Microphone Device)

Table 5: Service Requirements

Prerequisite: MICP 1/1 “Microphone Device”

Item	Service	Reference	Status	Inter-Layer Dependency
1	Microphone Control Service	[1] 3	M	[4] MICS
2	Audio Input Control Service	[1] 3	O	[5] AICS

2.3.2 GAP requirements

Table 6: GAP Requirements (Microphone Device)

Prerequisite: MICP 1/1 “Microphone Device”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	LE security mode 1	[1] 5.1	C.1	[3] GAP 25/1 OR GAP 35/1
2	Bondable mode (LE)	[1] 5.1	C.1	[3] GAP 24/2 OR GAP 34/2
3	Bondable mode (BR/EDR)	[1] 5.2	C.2	[3] GAP 1/7
4	Unauthenticated Pairing (LE security mode 1 level 2) with LE Secure Connections Pairing only	[1] 5.1	C.3	[3] GAP 25/11 OR GAP 35/11
5	Authenticated Pairing (LE security mode 1 level 3) with LE Secure Connections Pairing only	[1] 5.1	C.3	[3] GAP 25/12 OR GAP 35/12
6	LE security mode 1 level 4	[1] 5	C.3	[3] GAP 25/9 OR GAP 35/9
7	Derivation of LE LTK from BR/EDR Link Key	[1] 5.1	C.7	[3] GAP 41/2b OR GAP 43/2b
8	Minimum 128 Bit entropy key (LE)	[1] 5.1	C.6	[3] GAP 25/13 OR GAP 35/13
9	Security mode 4, level 2	[1] 5.2	C.2	[3] GAP 2/7c
10	128-bit encryption key size capable (BR/EDR)	[1] 5.2	C.2	[3] GAP 2/13
11	Derivation of BR/EDR Link Key from LE LTK	[1] 5.2	C.8	[3] GAP 41/2a OR GAP 43/2a
12	BR/EDR Secure Connections	[1] 5.2	C.8	N/A
13	LE Secure Connections	[1] 5.1	C.7	[3] GAP 27b/5 OR GAP 37b/5
14	Out of Band (LE)	[1] 5.1	C.7	[3] GAP 27b/9 OR GAP 37b/9
15	Out-of-Band (BR/EDR)	[1] 5.2	C.8	[3] GAP 2/14

C.1: Mandatory IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

C.2: Optional IF MICP 2/1 “Profile supported over BR/EDR”, otherwise not defined.

C.3: Mandatory to support at least one IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

C.4–C.5: No longer used.

C.6: Mandatory IF MICP 6/4 “Unauthenticated Pairing (LE security mode 1 level 2) with LE Secure Connections Pairing only” OR MICP 6/5 “Authenticated Pairing (LE security mode 1 level 3) with LE Secure Connections Pairing only”, otherwise not defined.

C.7: Mandatory to support at least one IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

C.8: Mandatory to support at least one IF MICP 2/1 “Profile supported over BR/EDR”, otherwise not defined.

Table 7: No longer used

2.4 Microphone Controller role

Table 8: X.Y Versions (Microphone Controller)

Prerequisite: MICP 1/2 "Microphone Controller"

Item	Version	Reference	Status
1	MICP v1.0	[1]	M

Table 9: X.Y.Z Versions (Microphone Controller)

Table number reserved but not yet in use

2.4.1 Services (Microphone Controller)

Table 10: Service Requirements

Prerequisite: MICP 1/2 "Microphone Controller"

Item	Service	Reference	Status
1	Discover Microphone Control Service	[1] 4	M
2	Discover Audio Input Control Service	[1] 4	O

Table 11: Microphone Control Service Characteristic Discovery Requirements

Prerequisite: MICP 10/1 "Discover Microphone Control Service"

Item	Characteristic	Reference	Status
1	Mute	[1] 4.3.1	M

Table 12: Microphone Control Service Procedures Support Requirements

Prerequisite: MICP 10/1 "Discover Microphone Control Service"

Item	Characteristic	Reference	Status
1	Configure Mute Notifications	[1] 4.4.1	O
2	Read Mute	[1] 4.4.1	M
3	Set Mute	[1] 4.4.1	O

Table 13: Audio Input Control Service Characteristic Discovery Requirements

Prerequisite: MICP 10/2 "Discover Audio Input Control Service"

Item	Feature	Reference	Status
1	Audio Input State	[1] 4.3.2	C.1
2	Gain Setting Properties	[1] 4.3.2	C.1
3	Audio Input Type	[1] 4.3.2	O
4	Audio Input Status	[1] 4.3.2	O
5	Audio Input Control Point	[1] 4.3.2	O

Item	Feature	Reference	Status
6	Audio Input Description	[1] 4.3.2	O

C.1: Mandatory IF MICP 14/7 “Set Gain Setting” OR MICP 14/8 “Mute” OR MICP 14/9 “Unmute” OR MICP 14/10 “Set Manual Gain Mode” OR MICP 14/11 “Set Automatic Gain Mode”, otherwise Optional.

Table 14: Audio Input Control Service Procedures Requirements

Prerequisite: MICP 10/2 “Discover Audio Input Control Service”

Item	Feature	Reference	Status
1	Configure Input State Notifications	[1] 4.5.1	C.1
2	Read Audio Input State	[1] 4.5.2	C.1
3	Read Gain Setting Properties	[1] 4.5.3	O
4	Read Audio Input Type	[1] 4.5.4	O
5	Configure Audio Input Status Notifications	[1] 4.5.5	O
6	Read Audio Input Status	[1] 4.5.6	O
7	Set Gain Setting	[1] 4.5.7.1	O
8	Mute	[1] 4.5.7.3	O
9	Unmute	[1] 4.5.7.2	O
10	Set Manual Gain Mode	[1] 4.5.7.4	O
11	Set Automatic Gain Mode	[1] 4.5.7.5	O
12	Configure Audio Input Description Notifications	[1] 4.5.8	O
13	Read Audio Input Description	[1] 4.5.9	O
14	Set Audio Input Description	[1] 4.5.10	O

C.1: Mandatory IF MICP 14/7 “Set Gain Setting” OR MICP 14/8 “Mute” OR MICP 14/9 “Unmute” OR MICP 14/10 “Set Manual Gain Mode” OR MICP 14/11 “Set Automatic Gain Mode”, otherwise Optional.

2.4.2 GATT requirements

Table 15: Microphone Controller GATT Requirements

Prerequisite: MICP 1/2 “Microphone Controller”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Discover All Primary Services	[1] 4.1	C.1	[2] GATT 3/2
2	Discover Primary Service by Service UUID	[1] 4.1	C.1	[2] GATT 3/3
3	Find Included Services	[1] 4.1	C.2	[2] GATT 3/4
4	Discover All Characteristics of a Service	[1] 4.1	C.3	[2] GATT 3/5
5	Discover Characteristics by UUID	[1] 4.1	C.3	[2] GATT 3/6
6	Discover All Characteristic Descriptors	[1] 4.1	M	[2] GATT 3/7
7	Read Characteristic Value	[1] 4.1	M	[2] GATT 3/8

Item	Capability	Reference	Status	Inter-Layer Dependency
8	Write Characteristic Value	[1] 4.1	M	[2] GATT 3/14
9	Single Notification	[1] 4.1	M	[2] GATT 3/17
10	Read Characteristic Descriptor	[1] 4.1	M	[2] GATT 3/19
11	Write Characteristic Descriptor	[1] 4.1	M	[2] GATT 3/21
12	GATT Client over BR/EDR	[1] 4.1	C.4	[2] GATT 1a/2
13	GATT Client over LE	[1] 4.1	C.5	[2] GATT 1a/1

C.1: Mandatory to support at least one.

C.2: Mandatory IF MICP 14/1 “Configure Input State Notifications” OR MICP 14/2 “Read Audio Input State” OR MICP 14/3 “Read Gain Setting Properties” OR MICP 14/4 “Read Audio Input Type” OR MICP 14/5 “Configure Audio Input Status Notifications” OR MICP 14/6 “Read Audio Input Status” OR MICP 14/7 “Set Gain Setting” OR MICP 14/8 “Mute” OR MICP 14/9 “Unmute” OR MICP 14/10 “Set Manual Gain Mode” OR MICP 14/11 “Set Automatic Gain Mode” OR MICP 14/12 “Configure Audio Input Description Notifications” OR MICP 14/13 “Read Audio Input Description” OR MICP 14/14 “Set Audio Input Description”, otherwise Optional.

C.3: Mandatory to support at least one.

C.4: Mandatory IF MICP 2/1 “Profile supported over BR/EDR”, otherwise not defined.

C.5: Mandatory IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

2.4.3 GAP requirements

Table 16: GAP Requirements (Microphone Controller)

Prerequisite: MICP 1/2 “Microphone Controller”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Bondable mode (LE)	[1] 5.1	C.1	[3] GAP 24/2 OR GAP 34/2
2	Bondable mode (BR/EDR)	[1] 5.2	C.2	[3] GAP 1/7
3	LE security mode 1	[1] 5	C.1	[3] GAP 25/1 OR GAP 35/1
4	Unauthenticated Pairing (LE security mode 1 level 2) with LE Secure Connections Pairing only	[1] 5	O	[3] GAP 25/11 OR GAP 35/11
5	Authenticated Pairing (LE security mode 1 level 3) with LE Secure Connections Pairing only	[1] 5	O	[3] GAP 25/12 OR GAP 35/12
6	LE security mode 1 level 4	[1] 5	O	[3] GAP 25/9 OR GAP 35/9
7	Minimum 128 Bit entropy key (LE)	[1] 5.1	C.3	[3] GAP 25/13 OR GAP 35/13
8	Derivation of LE LTK from BR/EDR Link Key	[1] 5.1	C.6	[3] GAP 41/2b OR GAP 43/2b
9	Security mode 4, level 2	[1] 5.2	C.2	[3] GAP 2/7c
10	128-bit encryption key size capable (BR/EDR)	[1] 5.2	C.2	[3] GAP 2/13

Item	Capability	Reference	Status	Inter-Layer Dependency
11	Derivation of BR/EDR Link Key from LE LTK	[1] 5.2	C.7	[3] GAP 41/2a OR GAP 43/2a
12	BR/EDR Secure Connections	[1] 5.2	C.7	N/A
13	LE Secure Connections	[1] 5.1	C.6	[3] GAP 27b/5 OR GAP 37b/5
14	Out of Band (LE)	[1] 5.1	C.6	[3] GAP 27b/9 OR GAP 37b/9
15	Out-of-Band (BR/EDR)	[1] 5.2	C.7	[3] GAP 2/14

C.1: Mandatory IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

C.2: Optional IF MICP 2/1 “Profile supported over BR/EDR”, otherwise not defined.

C.3: Mandatory IF MICP 16/4 “Unauthenticated Pairing (LE security mode 1 level 2) with LE Secure Connections Pairing only” OR MICP 16/5 “Authenticated Pairing (LE security mode 1 level 3) with LE Secure Connections Pairing only”, otherwise not defined.

C.4–C.5: No longer used.

C.6: Mandatory to support at least one IF MICP 2/2 “Profile supported over LE”, otherwise not defined.

C.7: Mandatory to support at least one IF MICP 2/1 “Profile supported over BR/EDR”, otherwise not defined.

Table 17: No longer used

3 References

[1] Microphone Control Profile Specification, Version 1.0

[2] ICS Proforma for Generic Attribute Profile (GATT)

[3] ICS Proforma for Generic Access Profile (GAP)

[4] ICS Proforma for Microphone Control Service (MCS)

[5] ICS Proforma for Audio Input Control Service (AICS)

4 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	p0	2021-03-02	Approved by BTI on 2021-02-28. MICP v1.0 adopted by the BoD on 2021-02-23. Prepared for publication.
	p1r00–r02	2021-04-16 – 2021-05-30	TSE 16770 (rating 1): Updated GAP inter-layer dependencies in Tables 6 and 16. Consistency checker fixes.
1	p1	2021-07-13	Approved by BTI on 2021-06-01. Prepared for TCRL 2021-1 publication.
	p1ed2r00	2021-10-13	TSE 17579 (rating 1): Fixed typo in table number referenced in C.4 and C.5 in Table 16.
	p1 edition 2	2021-11-24	Approved by BTI on 2021-11-08. Prepared for edition 2 publication.
	p1ed3r00	2023-02-15	TSE 22636 (rating 1): Replaced ILD references to Security Manager 8/1 with SM 8a/1 (for Central role) or SM 8b/1 (for Peripheral role) in Tables 7 and 17. Updated references. Editorials to align the document with the latest ICS template. Deleted draft revision history comments prior to p0.
	p1 edition 3	2023-03-15	Approved by BTI on 2023-03-13. Prepared for edition 3 publication.
	p2r00	2023-10-18	TSE 23340 (rating 2): To resolve GAP/SM ILDs: Removed the item for SM ICS from the References section and updated cross-refs throughout the doc. Updated “or” to “OR” in ILDs throughout the doc. In Table 6, added items 6/12–6/15 and updated conditionals and statuses accordingly. Removed SM requirements heading and deleted Table 7. Updated service names of 10/1 and 10/2 and related prerequisites for Tables 11–14. In Table 16, added items 16/12–16/15 and updated conditionals and statuses accordingly. Removed SM requirements heading and deleted Table 17.
2	p2	2024-07-01	Approved by BTI on 2024-04-21. Prepared for TCRL 2024-1 publication.
	p3r00	2025-02-19	TSE 27123 (rating 2): For Table 2, updated Status values and conditional C.1 and added C.2 and C.3. For Table 15, updated the 15/9 Capability value and added 15/12, 15/13, C.4, and C.5. Applied the current ICS template.
3	p3	2025-07-08	Approved by BTI on 2025-05-30. Prepared for TCRL pkg100 publication.
	p4r00–r01	2025-12-05 – 2026-01-14	TSE 28372 (rating 1): Updated the conditions in the transport table to make sure the layer is excluded when the design is an implementation of the Core-Controller Configuration by adding "OR CORE 40/1 “Core-Controller”" to an already excluded transport based on Core Configuration support.

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4	p4	2026-02-17	Approved by BTI on 2026-01-26. Prepared for TCRL pkg102 publication.

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