

Test Report

Report No.: CQASZ20180400028EW-07

Test Description: Bluetooth Low Energy RF PHY Conformance Test Report
Product/Design Name: 1MORE Triple Driver BT In-Ear Headphones
Product/Design ID: E1001BT
Trademark: 1MORE
Applicant: 1MORE Shen Zhen Acoustic Technology Co., Ltd.
Manufacturer: 1MORE Shen Zhen Acoustic Technology Co., Ltd.
Test Specification: RF PHY *Bluetooth*® Test Specification
Document Number RF-PHY.TS.5.0.2



Test Engineer's Signature.....
Test Engineer Aaron Wu



Test Reviewer's Signature.....
Test Reviewer Owen Zhou

***Bluetooth*® Radio Frequency (RF) Conformance Test Report**

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1 General Information

1.1 General

1.1.1 Administrative data of Test Report Issuer

Test Facility: Shenzhen Huaxia Testing Technology Co., Ltd

Test Facility Address: 1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

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1.1.2 Administrative data of Applicant

Applicant: 1MORE Shen Zhen Acoustic Technology Co., Ltd.

Applicant Address: Tianliao Building 1403-1411, Zone A Tianliao Industrial Park, Taoyuan Street, Nanshan District, Shenzhen, P.R. China

Responsible Person: Mrs. He

Phone Number : 13242075433

Fax :

Email : xiao.he<xiao.he@tiinlab.com.cn>

1.1.3 Administrative data of EUT Manufacturer

EUT Manufacturer: 1MORE Shen Zhen Acoustic Technology Co., Ltd.

Manufacturer Address: Tianliao Building 1403-1411, Zone A Tianliao Industrial Park, Taoyuan Street, Nanshan District, Shenzhen, P.R. China

Responsible Person: Mrs. He

Phone Number : 13242075433

Fax :

Email : xiao.he<xiao.he@tiinlab.com.cn>

1.2 Description of EUT

Product name: 1MORE Triple Driver BT In-Ear Headphones

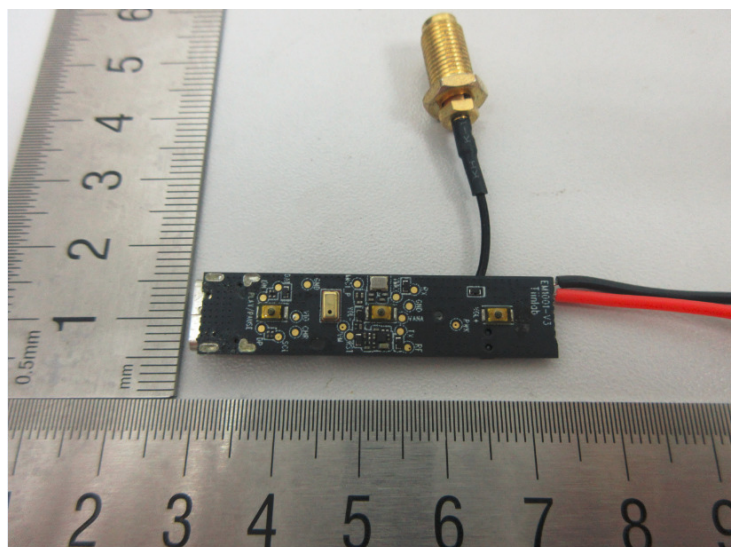
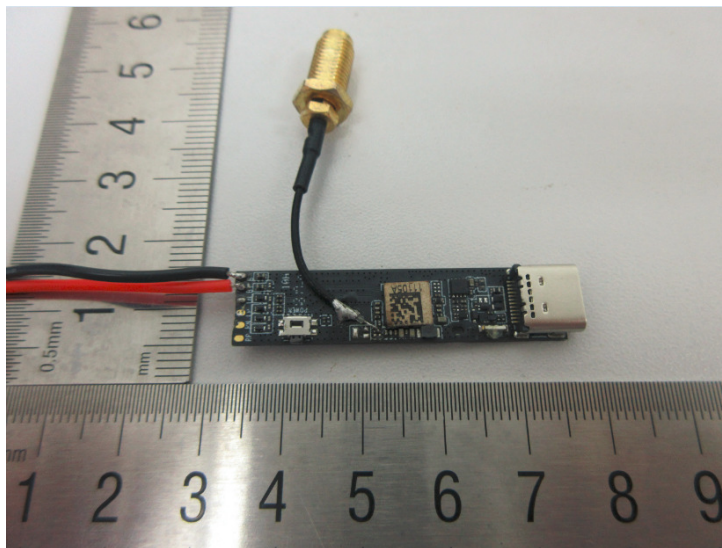
Product description: 1MORE Triple Driver BT In-Ear Headphones

Product ID/Model: E1001BT

Hardware Version: v1.0

Software Version: v1.0

Internal Photos:





2 Summary List of All Test Cases

Results of RF PHY-Conformance Testing

For RF PHY-Conformance Testing:

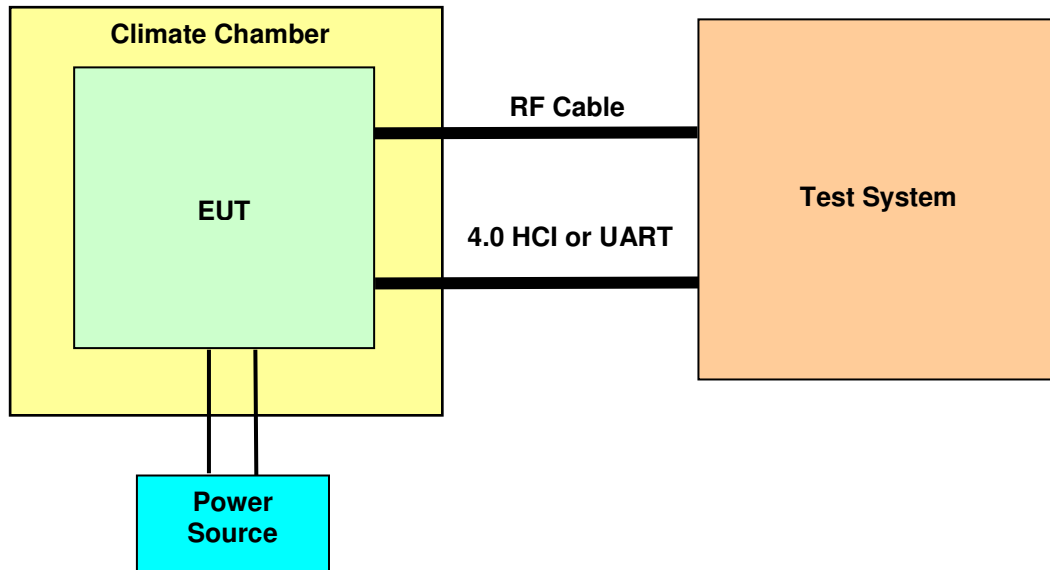
Bluetooth RF PHY-Conformance Testing				
No.	TC identifier	Description	Verdict	Comments
1	TP/TRM-LE/CA/BV-01-C	Output power	PASS	NOC
2	TP/TRM-LE/CA/BV-03-C	In-band emissions	PASS	NOC
3	TP/TRM-LE/CA/BV-05-C	Modulation characteristics	PASS	NOC
4	TP/TRM-LE/CA/BV-06-C	Carrier frequency offset and drift	PASS	NOC
5	TP/TRM-LE/CA/BV-08-C	In-band emissions at 2 Ms/s	N/A	NOC
6	TP/TRM-LE/CA/BV-09-C	Stable Modulation Characteristics at 1 Ms/s	N/A	NOC
7	TP/TRM-LE/CA/BV-10-C	Modulation Characteristics at 2 Ms/s	N/A	NOC
8	TP/TRM-LE/CA/BV-11-C	Stable Modulation Characteristics at 2 Ms/s	N/A	NOC
9	TP/TRM-LE/CA/BV-12-C	Carrier frequency offset and drift at 2 Ms/s	N/A	NOC
10	TP/TRM-LE/CA/BV-13-C	Modulation Characteristics, LE Coded (S=8)	N/A	NOC
11	TP/TRM-LE/CA/BV-14-C	Carrier frequency offset and drift, LE Coded (S=8)	N/A	NOC
12	TP/RCV-LE/CA/BV-01-C	Receiver sensitivity	PASS	NOC
13	TP/RCV-LE/CA/BV-03-C	C/I and receiver selectivity performance	PASS	NOC
14	TP/RCV-LE/CA/BV-04-C	Blocking performance	PASS	NOC
15	TP/RCV-LE/CA/BV-05-C	Intermodulation performance	PASS	NOC
16	TP/RCV-LE/CA/BV-06-C	Maximum input signal level	PASS	NOC
17	TP/RCV-LE/CA/BV-07-C	PER Report Integrity	PASS	NOC
18	TP/RCV-LE/CA/BV-08-C	Receiver sensitivity at 2 Ms/s	N/A	NOC
19	TP/RCV-LE/CA/BV-09-C	C/I and Receiver Selectivity Performance at 2 Ms/s	N/A	NOC
20	TP/RCV-LE/CA/BV-10-C	Blocking performance at 2 Ms/s	N/A	NOC
21	TP/RCV-LE/CA/BV-11-C	Intermodulation performance at 2 Ms/s	N/A	NOC
22	TP/RCV-LE/CA/BV-12-C	Maximum input signal level at 2 Ms/s	N/A	NOC
23	TP/RCV-LE/CA/BV-13-C	PER Report Integrity at 2 Ms/s	N/A	NOC
24	TP/RCV-LE/CA/BV-14-C	Receiver Sensitivity at NOC, Stable Modulation Index	N/A	NOC
25	TP/RCV-LE/CA/BV-15-C	C/I and Receiver Selectivity Performance, Stable Modulation Index	N/A	NOC
26	TP/RCV-LE/CA/BV-16-C	Blocking Performance, Stable Modulation Index	N/A	NOC
27	TP/RCV-LE/CA/BV-17-C	Intermodulation Performance, Stable Modulation Index	N/A	NOC
28	TP/RCV-LE/CA/BV-18-C	Maximum input signal level, Stable Modulation Index	N/A	NOC
29	TP/RCV-LE/CA/BV-19-C	PER Report Integrity, Stable Modulation Index	N/A	NOC
30	TP/RCV-LE/CA/BV-20-C	Receiver sensitivity at 2 Ms/s, Stable Modulation Index	N/A	NOC
31	TP/RCV-LE/CA/BV-21-C	C/I and Receiver Selectivity Performance at 2 Ms/s, Stable Modulation Index	N/A	NOC



Bluetooth RF PHY-Conformance Testing				
No.	TC identifier	Description	Verdict	Comments
32	TP/RCV-LE/CA/BV-22-C	Blocking performance at 2 Ms/s, Stable Modulation Index	N/A	NOC
33	TP/RCV-LE/CA/BV-23-C	Intermodulation performance at 2 Ms/s, Stable Modulation Index	N/A	NOC
34	TP/RCV-LE/CA/BV-24-C	Maximum input signal level at 2 Ms/s, Stable Modulation Index	N/A	NOC
35	TP/RCV-LE/CA/BV-25-C	PER Report Integrity at 2 Ms/s, Stable Modulation Index	N/A	NOC
36	TP/RCV-LE/CA/BV-26-C	Receiver sensitivity, LE Coded (S=2)	N/A	NOC
37	TP/RCV-LE/CA/BV-27-C	Receiver sensitivity, LE Coded (S=8)	N/A	NOC
37	TP/RCV-LE/CA/BV-28-C	C/I and Receiver Selectivity Performance, LE Coded (S=2)	N/A	NOC
39	TP/RCV-LE/CA/BV-29-C	C/I and Receiver Selectivity Performance, LE Coded (S=8)	N/A	NOC
40	TP/RCV-LE/CA/BV-30-C	PER Report Integrity, LE Coded (S=2)	N/A	NOC
41	TP/RCV-LE/CA/BV-31-C	PER Report Integrity, LE Coded (S=8)	N/A	NOC
42	TP/RCV-LE/CA/BV-32-C	Receiver sensitivity, LE Coded (S=2), Stable Modulation Index	N/A	NOC
43	TP/RCV-LE/CA/BV-33-C	Receiver sensitivity, LE Coded (S=8), Stable Modulation Index	N/A	NOC
44	TP/RCV-LE/CA/BV-34-C	C/I and Receiver Selectivity Performance, LE Coded (S=2), Stable Modulation Index	N/A	NOC
45	TP/RCV-LE/CA/BV-35-C	C/I and Receiver Selectivity Performance, LE Coded (S=8), Stable Modulation Index	N/A	NOC
46	TP/RCV-LE/CA/BV-36-C	PER Report Integrity, LE Coded (S=2), Stable Modulation Index	N/A	NOC
47	TP/RCV-LE/CA/BV-37-C	PER Report Integrity, LE Coded (S=8), Stable Modulation Index	N/A	NOC

3 RF Conformance Testing

3.1 Description of Test Set-up



The Test System is a Bluetooth SIG validated Bluetooth RF PHY conformance tester for Bluetooth Qualification.

All RF PHY conformance test cases are carried out via conducted method to minimize measurement uncertainty.

All RF PHY conformance test cases are carried out via the Direct Test Mode through the 4.0 HCI interface or UART test interface.

3.2 List of Performed Test Cases

Core Specification Version of EUT: 2.0 2.0+EDR 2.1 2.1+EDR 3.0 4.0 4.1 4.2

TC-Identifier	Final Verdict	Date of Test
TP/RCV-LE/CA/BV-01-C	Pass	2018-06-25 ~ 2018-06-28
TP/RCV-LE/CA/BV-03-C	Pass	2018-06-25 ~ 2018-06-28
TP/RCV-LE/CA/BV-04-C	Pass	2018-06-25 ~ 2018-06-28
TP/RCV-LE/CA/BV-05-C	Pass	2018-06-25 ~ 2018-06-28
TP/RCV-LE/CA/BV-06-C	Pass	2018-06-25 ~ 2018-06-28
TP/RCV-LE/CA/BV-07-C	Pass	2018-06-25 ~ 2018-06-28
TP/TRM-LE/CA/BV-01-C	Pass	2018-06-25 ~ 2018-06-28
TP/TRM-LE/CA/BV-03-C	Pass	2018-06-25 ~ 2018-06-28
TP/TRM-LE/CA/BV-05-C	Pass	2018-06-25 ~ 2018-06-28
TP/TRM-LE/CA/BV-06-C	Pass	2018-06-25 ~ 2018-06-28

3.3 Referenced Documents

Document Name	Version	Issue Date
RF PHY <i>Bluetooth</i> ® Test Specification	RF-PHY.TS.5.0.2	2017-12-19
RF PHY <i>Bluetooth</i> ® Implementation Conformance Statement (ICS) Proforma	RF-PHY.ICS.5.0.0	2016-12-13
Test Case Reference List for the Bluetooth Qualification Program (Bluetooth Core 2.0 – 5.0 implementations).	Core.TCRL.2017-2	2017-12-19

3.4 Additional Information

The test results presented in this test report apply only to the particular equipment under test (EUT) Declared in Clause 1.2 of this report, for the functionality described in the relevant Protocol Implementation Statement (PICS), as presented for test on the date(s) declared in the relevant Protocol Implementation Extra Information for testing (PIXIT).

This test report does not constitute or imply, by its own, to be an approval of the product by Qualification Bodies, Certification Bodies or competent Authorities.

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Abbreviations in this report:

OK, Pass, P	=	passed
F	=	failed
N/A	=	not applicable
NT	=	not tested
EUT	=	equipment under test
NOC	=	Normal Operating Conditions (RF PHY test spec Section 7.3)
EOC	=	Extreme Operating Conditions (RF PHY test spec Section 7.4)
PICS	=	protocol implementation conformance statement
PIXIT	=	protocol implementation extra information for test

3.5 Test Sample Information

The following sample was used for testing.

Sample No	Serial No/BT address	Date Of Reception
SZCR180617-01	67564534571E	2018-06-17

3.6 List of Test Equipments

Validated *Bluetooth* RF conformance test system for all test cases is Interlab RF test solution V5.1.4.

3.7 Measurement Uncertainty

Measurements and results are all in compliance with the applied test specification listed in this report.

The measurement uncertainties of the test laboratory which carried out the test cases are compliant with requirements stated in Section 7.8 of the applied test specification.

All measurements and results are recorded and maintained at the laboratory performing the tests. Measurements uncertainties are taken into account when concluding measurement to pass / fail criteria.

The detailed measurement uncertainty is defined in relative lab's documents.

3.8 List of Integrated Tested Components in EUT

Bluetooth QD ID	Product ID	Manufacturer
85736 (D031923)	Dual mode controller subsystem 4.2	Bestechnic (Shanghai) Co., Ltd
86144 (D032196)	Dual mode host subsystem 4.2	Bestechnic (Shanghai) Co., Ltd

Annex 1 PICS

Capability Statement

Table 1: Bluetooth LE RF Capabilities

Support	Item	Capability	System Spec Reference	Status	Comment
<input type="checkbox"/>	1/1	LE Transmitter (Non-connectable, Broadcaster)	[2], 3	C.1	C.1: Mandatory to support at least one of these capabilities.
<input type="checkbox"/>	1/2	LE Receiver (Non-connectable, Observer)	[2], 4	C.1	C.1: Mandatory to support at least one of these capabilities.
<input checked="" type="checkbox"/>	1/3	LE Transceiver (Connectable, Peripheral/Central)	[2], 3, 4	C.1	C.1: Mandatory to support at least one of these capabilities.
<input type="checkbox"/>	1/4	LE 2M PHY	3, 4	C.2	C.2: Optional IF SUM ICS 21/16 "Core 5.0" AND RF PHY 1/3 "LE Transceiver" are supported, otherwise Excluded.
<input type="checkbox"/>	1/5	Stable Modulation Index - Transmitter	3.1.1	C.3	C.3: Optional IF SUM ICS 21/16 "Core 5.0" AND (RF PHY 1/1 "LE Transmitter" OR RF PHY 1/3 "LE Transceiver") are supported, otherwise Excluded.
<input type="checkbox"/>	1/6	Stable Modulation Index - Receiver	3.1.1	C.4	C.4: Optional IF SUM ICS 21/16 "Core 5.0" AND (RF PHY 1/2 "LE Receiver" OR RF PHY 1/3 "LE Transceiver") are supported, otherwise Excluded.
<input type="checkbox"/>	1/7	LE Coded PHY	3, 4	C.2	C.2: Optional IF SUM ICS 21/16 "Core 5.0" AND RF PHY 1/3 "LE Transceiver" are supported, otherwise Excluded.

Capability Statement

Table 2: Bluetooth LE Test Interface Capabilities

Support	Item	Capability	System Spec Reference	Status	Comment
<input checked="" type="checkbox"/>	2/1	HCI Test Interface	[3], 2	C.1	C.1: At least one of the capabilities shall be supported.
<input type="checkbox"/>	2/2	UART Test Interface	[3], 3	C.1	C.1: At least one of the capabilities shall be supported.

Annex 2 PIXIT for RF-PHY (LE)

IXIT Reference	Identifier	Sub-Identifier (Optional)	Value	Units (if applicable)	Comments
RF-PHY:P1:1	Inband Image frequency	Low frequency	0	MHz	RCV-LE/CA/03/C (C/I and Receiver Selectivity Performance)
RF-PHY:P1:2		Middle frequency	0	MHz	
RF-PHY:P1:3		High frequency	0	MHz	
RF-PHY:P2:1	Value n for Intermodulation test	Low frequency	5	Integer	RCV-LE/CA/05/C (Intermodulation Performance)
RF-PHY:P2:2		Middle frequency	5	Integer	
RF-PHY:P2:3		High frequency	5	Integer	
RF-PHY:P4	Power source voltage	Nominal (NOC)	3.7	V	Vol. 6, Part A, Appendix A, Section A.1.2, Nominal Supply Voltage
RF-PHY:P5	Normal Operating temperature	Nominal (NOC)	25	°C	Vol. 6, Part A, Appendix A, Section A.1.1, Normal Temperature and Air Humidity. The NOC test temperature shall be within $\pm 10^{\circ}\text{C}$ of this value.
RF-PHY:P6:1	Operating air humidity range (relative)	Maximum	75	%	Chapter 6.3.1, Normal Temperature and Air Humidity
RF-PHY:P6:2		Minimum	20	%	Chapter 6.3.1, Normal Temperature and Air Humidity
RF-PHY:P6:3		Air humidity level for NOC tests	50	%	The level shall be within declared range
RF-PHY:P7:1	Test interface implementation	HCI or 2-wire UART	HCI		Part F, Chapter 1, Bluetooth Low Energy Controller Specification
RF-PHY:P7:2		Datarate	115200	bps	Part F, Chapter 3.1, Bluetooth Low Energy Controller Specification
RF-PHY:P9:1	Maximum TX packet length (MAX_TX_LENGTH)		37	Bytes	Chapter 6.7, Bluetooth Low Energy RF-PHY Test Specification
RF-PHY:P9:2	Maximum RX packet length (MAX_RX_LENGTH)		37	Bytes	Chapter 6.7, Bluetooth Low Energy RF-PHY Test Specification
RF-PHY:P9:3	Maximum TX packet length (MAX_TX_LENGTH) 2M			Bytes	
RF-PHY:P9:4	Maximum TX packet length (MAX_TX_LENGTH) S=2			Bytes	



RF-PHY:P9:5	Maximum TX packet length (MAX_TX_LENGTH) S=8			Bytes	
RF-PHY:P9:6	Maximum RX packet length (MAX_RX_LENGTH) 2M			Bytes	
RF-PHY:P9:7	Maximum RX packet length (MAX_RX_LENGTH) S=2			Bytes	
RF-PHY:P9:8	Maximum RX packet length (MAX_RX_LENGTH) S=8			Bytes	
RF-PHY:P10:1	Maximum TX mode output power		10	dBm	Part A, Chapter 3, Bluetooth Low Energy Controller Specification
RF-PHY:11:1	Inband Image Frequency (2Ms/s)	Low frequency		MHz	RCV-LE/CA/BV-TBD02/C (C/I and Receiver Selectivity Performance at 2Ms/s)
RF-PHY:11:2		Middle frequency		MHz	
RF-PHY:11:3		High frequency		MHz	
RF-PHY:12:1	Value n for Intermodulation test (2Ms/s)	Low frequency		Integer	RCV-LE/CA/BV-TBD04/C (Intermodulation performance at 2 Ms/s)
RF-PHY:12:2		Middle frequency		Integer	
RF-PHY:12:3		High frequency		Integer	
RF-PHY:13:1	Inband Image Frequency (Stable Modulation Receiver)	Low frequency		MHz	RCV-LE/CA/BV-TBD08/C (C/I and Receiver Selectivity Performance, Stable Modulation Index)
RF-PHY:13:2		Middle frequency		MHz	
RF-PHY:13:3		High frequency		MHz	
RF-PHY:14:1	Value n for Intermodulation test (Stable Modulation Receiver)	Low frequency		Integer	RCV-LE/CA/BV-TBD10/C (Intermodulation performance, Stable Modulation Index)
RF-PHY:14:2		Middle frequency		Integer	
RF-PHY:14:3		High frequency		Integer	
RF-PHY:15:1	Inband Image Frequency (Stable Modulation Receiver, 2Ms/s)	Low frequency		MHz	RCV-LE/CA/BV-TBD14/C (C/I and Receiver Selectivity Performance at 2Ms/s, Stable Modulation Index)
RF-PHY:15:2		Middle frequency		MHz	
RF-PHY:15:3		High frequency		MHz	
RF-PHY:16:1	Value n for Intermodulation test (Stable Modulation Receiver, 2Ms/s)	Low frequency		Integer	RCV-LE/CA/BV-TBD16/C (Intermodulation performance at 2Ms/s, Stable Modulation Index)
RF-PHY:16:2		Middle frequency		Integer	
RF-PHY:16:3		High frequency		Integer	

Annex 3 Test plan generated by launch studio

RF-PHY.TS.5.0.2			
Test Case ID	Legacy Test Case ID	Test Case Description	Test Case Category
TP/RCV-LE/CA/BV-01-C	TP/RCV-LE/CA/BV-01-C	Receiver sensitivity at NOC	A
TP/RCV-LE/CA/BV-03-C	TP/RCV-LE/CA/BV-03-C	C/I and receiver selectivity performance	A
TP/RCV-LE/CA/BV-04-C	TP/RCV-LE/CA/BV-04-C	Blocking performance	A
TP/RCV-LE/CA/BV-05-C	TP/RCV-LE/CA/BV-05-C	Intermodulation performance	A
TP/RCV-LE/CA/BV-06-C	TP/RCV-LE/CA/BV-06-C	Maximum input signal level	A
TP/RCV-LE/CA/BV-07-C	TP/RCV-LE/CA/BV-07-C	PER Report Integrity	A
TP/TRM-LE/CA/BV-01-C	TP/TRM-LE/CA/BV-01-C	Output power at NOC	A
TP/TRM-LE/CA/BV-03-C	TP/TRM-LE/CA/BV-03-C	In-band emissions at NOC	A
TP/TRM-LE/CA/BV-05-C	TP/TRM-LE/CA/BV-05-C	Modulation characteristics	A
TP/TRM-LE/CA/BV-06-C	TP/TRM-LE/CA/BV-06-C	Carrier frequency offset and drift at NOC	A