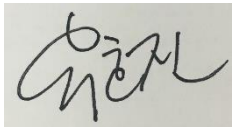


Movon Corporation



Approval Sheet

Item	Bluetooth Remote Controller
CUSTOMER	ALT
MODEL	BMM-BT12
VERSION	1.0
DATE	2021. 08. 19

개발사		
담당	검 토	승 인
		
유호진		심경석
승인유효기간	승인일로부터 1 년	

납품처		
담당	검 토	승 인
승인유효기간	승인일로부터 년	

TABLE OF CONTENTS

1. Revision History

1.1 Revision History	-----	5
----------------------	-------	-------------------

2. Product Introduction

2.1 Product Description	-----	7
2.1.1 Model Name		
2.1.2 Appearance		
2.1.3 Dimension		
2.1.4 PCB Label Sticker Specification		
2.1.5 S/N Label Specification		
2.1.6 Label Specification		
2.1.7 Printing Specification		
2.1.8 Color Specification		
2.1.9 Manual Specification		
2.1.10 Carton Box Layout		
2.1.11 Label Sticker Specification		
2.1.12 Packing Specification		
2.2. Battery 사양	-----	22
2.3 Product Specification	-----	31
2.4 Electrical Characteristics	-----	32
2.5 Bluetooth 특성	-----	33
2.5.1 Bluetooth 일반특성		
2.5.2 Bluetooth RF특성		
2.6 동작사양	-----	34
2.6.1 Button Functionality		
2.6.2 LED 표시		
2.6.3 IR/BLE Key Code		
2.7 Block Diagram	-----	38
2.8 Schematic	-----	39
2.9 부품배치도	-----	43
2.10 Layer별 Gerber	-----	44
2.11 Part List(Hardware)	-----	45
2.12 Part List(Mechanical)	-----	46
2.12.1 Mechanical drawing		
2.13 ANT 특성	-----	61

4. 신뢰성 결과

3.1 신뢰성 시험항목 및 결과	-----	63
-------------------	-------	--------------------

5. 규격 인증서

4.1 KC 인증서	-----	65
4.2 Bluetooth 인증	-----	66

1. Revision History

1. 1 Revision History

No.	Date	Revision	Revision History	개 정 자
1	2021. 08. 19	New	First release	유호진
2	2021. 09. 14	2nd	Add Mechanical drawing	유호진

2. Product Introduction

2. 1 Product Description

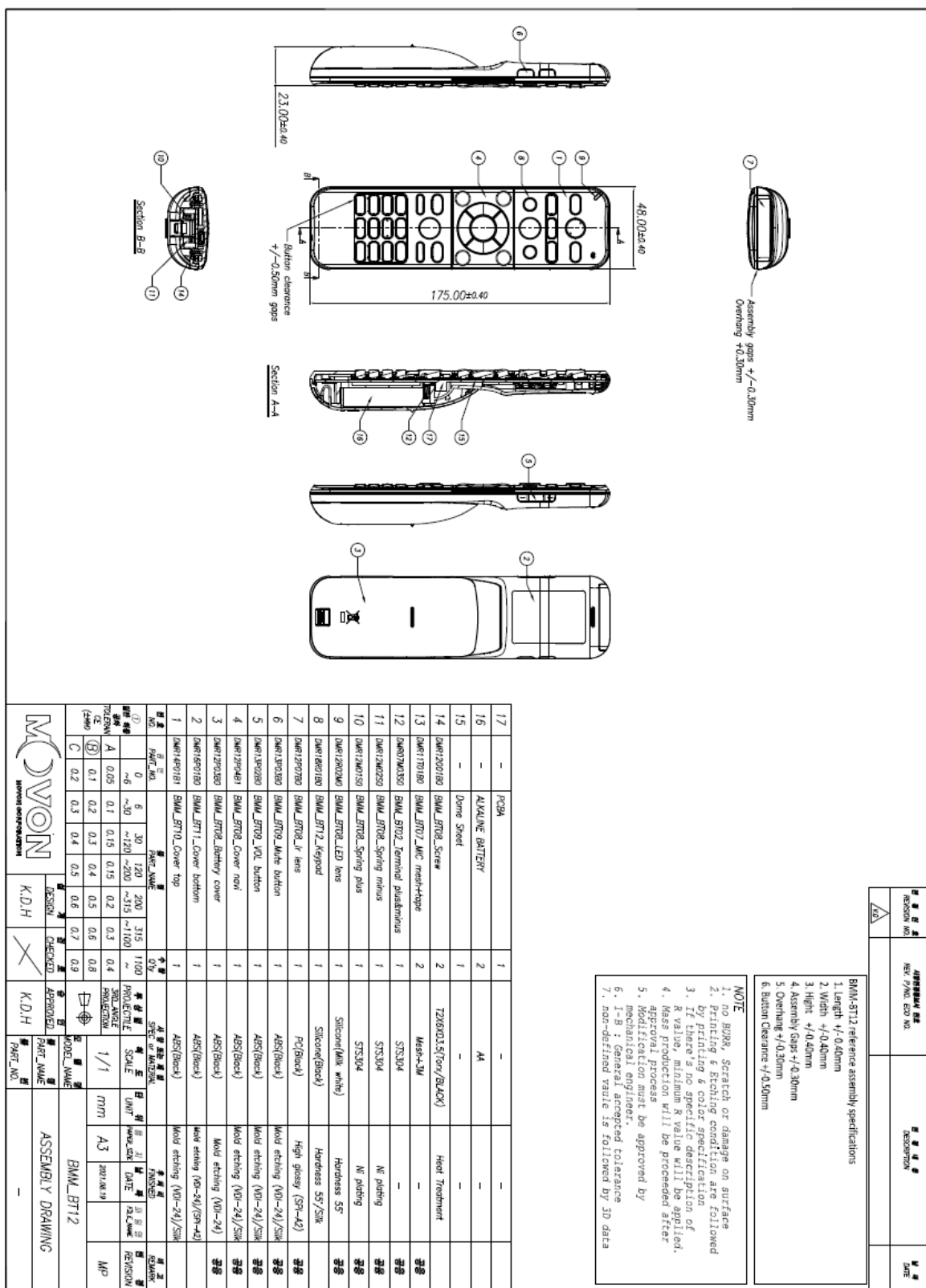
2.1.1 Model Name

Model	Bluetooth Remote Controller
Model No.	BMM-BT12
Certificate No (KC)	R-C-MVN-BMM-BT12

2.1.2 Appearance



2.1.3 Dimension

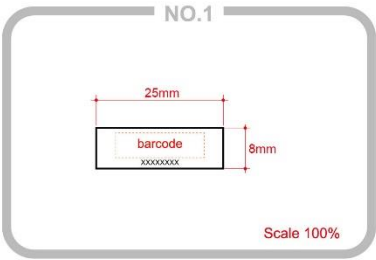
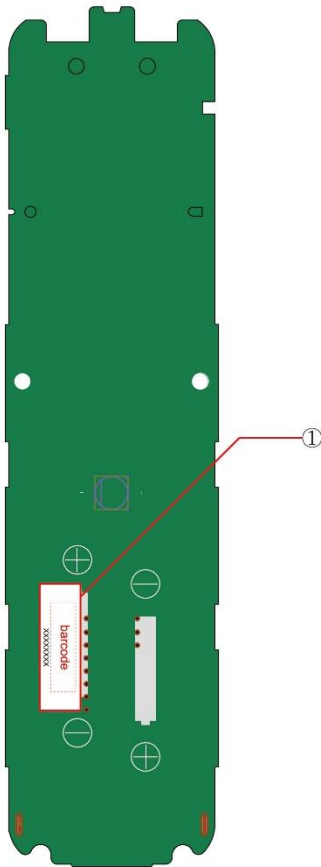


2.1.4 PCB Label Sticker Specification



PCB Label Sticker Specification

모 델	BMM-BT12	작성일	2021.08.18	발 신	담당	팀장	수 신	담당	팀장
품 명		용 도							
제작부서	Design Team	인쇄방법							
담당 자	ANN(심다정)	기 타							



Scale : 100 %

NO	NAME	COLOR	NO	NAME	COLOR
1	Sticker	Background(바탕) : White Text(문자) : Black	2		

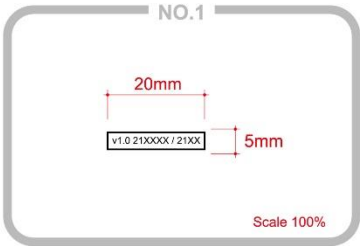
2.1.5 S/N Label Specification



S/N Label Sticker Specification

모 델	BT12	작성일	2021.08.18	발 신	담당	팀장	수 신	담당	팀장
품 명		용 도	SK 향						
제작부서	Design Team	인쇄방법							
담당자	ANN(심나정)	기 타							

SCALE 100%



NO	NAME	COLOR	NO	NAME	COLOR
1	Sticker	Background(바탕) : White Text(문자) : Black	2		

2.1.6 Label Specification



BackLabel Sticker

MOVON

모 델	BMM-BT12	작성일	2021.08.05	발 신	담당	실장	담당	실장
품 명	Design Team	용 도	SK 향					
설 달 자	ANN(심다경)	인쇄방법						
		기 타						



Size : 30 X 42mm

NO	NAME	COLOR
1	LABEL	White Bopp(유포지) Matte Laminating / ① BLACK TEXT:WHITE ② PANTONE 425C ③ PANTONE 422C

2.1.7 Printing Specification

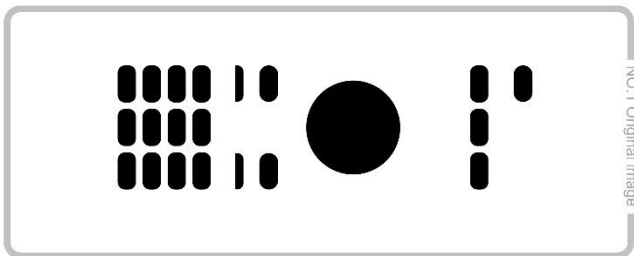
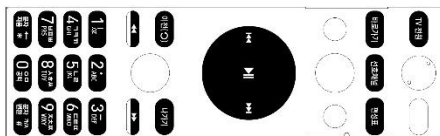
MOVON

Printing Specification_1 BLACK

MOVON

이름	BMM-BT12	작업일	2021.05.14	판	담당	신정	수	담당	신정
프로젝트명	Design Team	종류	SK형	신					
생성자	김다정(MAN)	크기	7.6						

도	명	BWM-BT12	주요원	2021.05.14
제작자	제작	Design Team	확인	SKP
승인자	승인	김민정(MIN)	기	0
	담당	심장	수	심
	담당	심장		

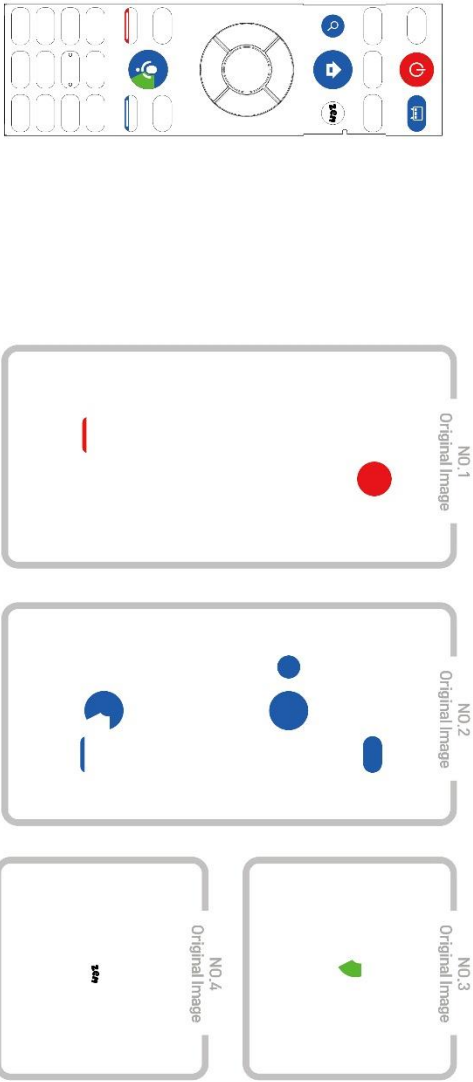


NO.1 Original image

Scale 100%

NO	NAME	COLOR
1	ARTWORK	PANTONE Warm Gray 1C

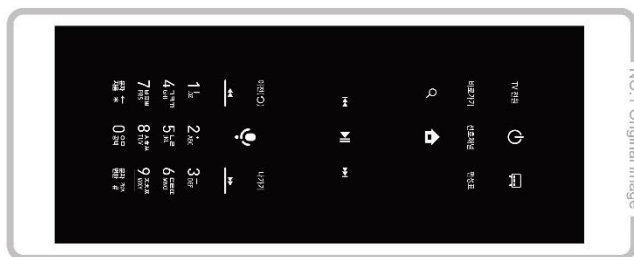
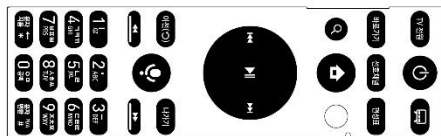
도	명	BMM-BT12	제안일	2021.05.14	비	단	설	단	설
제안/수정	Design Team	디자인팀	SK	신					
승인/취소	승인/거부(ANN)	승인/거부							



Scale 100%

NO	NAME	COLOR	NO	NAME	COLOR
1.	RED COLOR	PANTONE 199C	4.	ZEM COLOR	PANTONE BLACK
2.	BLUE COLOR	PANTONE 2995C			
3.	GREEN COLOR	PANTONE 361C			

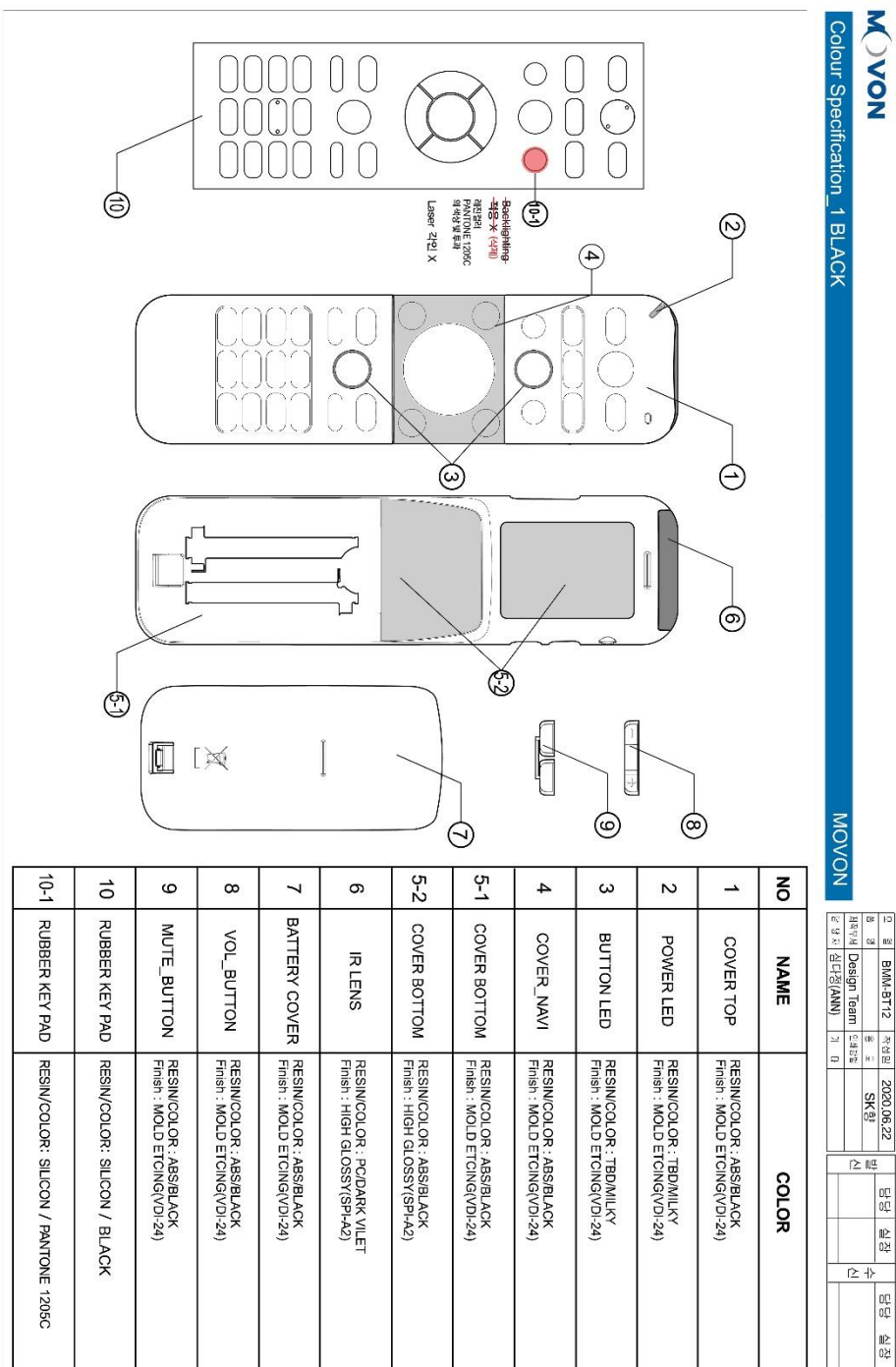
제	BMW-BT12	제	2021.05.14	제		제		제		제	
제	Design Team	제	SK	제		제		제		제	
제	제	제	제	제	제	제	제	제	제	제	제



Scale 100%

NO	NAME	COLOR
1	ARTWORK	PANTONE BLACK(Matte)Refer to 'BMW BT08 Kids Zone COVER TOP')

2.1.8 Color Specification



2.1.9 Manual Specification

간단한 문제 해결하기

※ 아래 방법으로 문제가 해결되지 않으면 고객센터로 문의해 주세요. (고객센터 106)

- 리모컨 버튼이 작동하지 않는다면?**
 - 배터리 상태를 확인해 주세요. 배터리가 부족할 때는 리모컨 완전 상태에서 배터리가 들어맞아 줘야 합니다.
 - 셋톱박스 뒷면에 있는 전원을 켜주세요.
- 리모컨이 어디 있는지 못찾았다면?**
 - AI 1.2 & UHD 1, 2, 3(HDR), 4 셋톱박스 - 셋톱박스의 음량 [+/-] 버튼 중 하나를 3초 이상 눌러주세요.
 - UHD 4 셋톱박스 - 셋톱박스의 채널 DOWN [V] 버튼을 3초 이상 눌러주세요.
 - 리모컨에서 자동으로 찾아가고 알람음이 울립니다.
 - 리모컨을 찾을 때에는 아무 버튼이나 눌러 알람음을 멈출 수 있습니다.
- TV 전원을 켜지거나 작동하지 않는다면?**
 - TV 전원을 켜 상태에서 [] + [] 버튼을 3초 이상 길게 눌러주세요.
 - 리모컨 완전 상태에서 눌러주세요. TV가 켜진 후 리모컨의 채널 [V] 버튼을 눌러주세요.
 - TV 전원이 꺼지면 [] 버튼을 눌러 설정을 완료해 주세요.

BTv 리모컨, 더 편리하게 보세요!

- 셋톱박스와 TV 전원을 동시에 제어하는 통합 기능이 더 편리합니다!
- [] 버튼을 사용할 때, 가운 셋톱박스 전원과 TV 전원이 동시에 제어되지 않아 불편하셨나요? 이제, 셋톱박스의 전원 상태에 맞게 TV 전원을 자동으로 제어합니다.
- 외부입력 설정이 더 똑똑해졌습니다!
- 리모컨의 [] 버튼을 길게 누르면 B tv 기능이 활성화됩니다!
- 이제, B tv 리모컨으로 셋톱박스 전원을 켜면 TV의 외부입력 설정이 자동으로 B tv에 맞게 변경됩니다.
- ※ 단, 셋톱박스의 TV가 HDMI 케이블로 연결되어 있어야 합니다.
- ※ 삼성/삼성+ 등 국내의 주요 제조사의 TV에 맞춰 개발된 기능입니다. 그 외 제조사의 TV는 별도 지원이 예정입니다.

고객센터

리모컨과 관련된 서비스는 SK브로드밴드가 제공합니다.
자세한 상담을 원하시면 아래 고객센터를 통해 친절하게 안내 받으실 수 있습니다.
고객센터 106 | 홈페이지 www.skbbroadband.com

리모컨

제품설명서

B tv 리모컨 사용 전 올바른 사용방법과 주의사항을 확인해 주세요.

BT12

구성품 확인하기

리모컨 1개, 제품설명서 1부, AA배터리 2개

셋톱박스 연결하기

● 블루투스 연결하기
 리모컨과 셋톱박스를 블루투스로 연결해 주세요. 연결을 미치면 어느 방향에서든 버튼을 눌러도 리모컨 신호가 잘 안나옵니다.
 [문자자음] + [문자번호] 버튼을 동시에 3초 이상 눌러주세요.
 리모컨과 셋톱박스가 자동으로 연결됩니다.
 연결 중에는 리모컨 왼쪽에 녹색 불빛이 깜빡거리고 연결이 완료되면 B tv에 '리모컨 연결이 완료되었습니다.' 화면이 나타납니다.
 ※ 배터리가 부족하면 블루투스 연결이 해제되며, 리모컨 버튼이 들어오지 않습니다.
 ※ 블루투스 연결 후에도 TV 버튼(통합 전원, TV 전원, TV 음량, 외부입력)은 셋톱박스가 있는 쪽을 향해 눌러야 원활하게 작동합니다.

리모컨 버튼 살펴보기

- 상태 LED
- TV 전원
- 외부입력
- 검색
- 홈
- 조용히
- TV 음량
- 채널/일시정지
- 지시/뒤가기
- 이전
- NUUGU 음성검색
- 백리/뒤가기/뒤가기
- 숫자, 문자
- 문자지움
- 블루투스 연결
- 미시(MIC)
- 스마트
- 통합 전원
- B tv 음량
- 바로그기
- 전통채널
- ZEM
- 채널
- 나가기
- 문자변환
- 일일 음

리모컨 주요 기능 알아보기

통합 전원
 셋톱박스와 TV 전원을 동시에 켜고 끌 수 있습니다.
 ※ [] 버튼을 눌러서 셋톱박스와 TV 전원을 켜면, 다시 [] 버튼을 눌러 동시에 켜주세요.

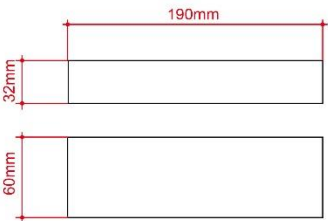
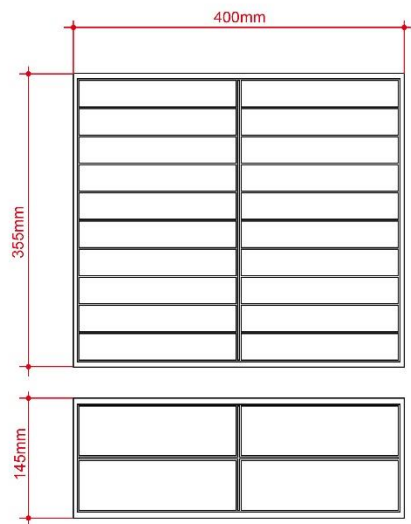
스마트 TV 제어
 리모컨의 모드를 전환하여 B tv뿐만 아니라 스마트 TV도 제어 가능합니다.
 리모컨 스마트 TV 모드: [] 을 누르면 스마트 TV를 화면으로 이동하여 [상하좌우] [H] [확인] [이전] [나가기] [TV음량] 버튼 사용 가능합니다.
 리모컨 B tv 모드: [] 을 누르면 B tv 화면으로 이동하여, 리모컨 전 버튼 사용 가능합니다.

VOD 시청
 채널/일시정지: VOD를 재생하거나 일시정지할 수 있습니다.
 뒤로/앞으로 건너뛰기: VOD 시청 중 앞 또는 뒷부분으로 건너뛸 수 있습니다. (영상의 10초 혹은 30초 단위로 이동)
 백리/뒤가기/뒤가기: VOD를 백리/뒤가기하거나 되감기할 수 있습니다. (2배속/4배속/8배속/16배속)
 ※미시: [] 버튼을 누르면 재생 속도를 더욱 미세하게 조절할 수 있습니다.
 (0.8 → 1.2 → 1.5 → 2 → 4 → 8 → 16배속 순으로 재생 가능)
 단, 2배속 이상으로 재생 속도를 높이면 음질 저하가 됩니다.

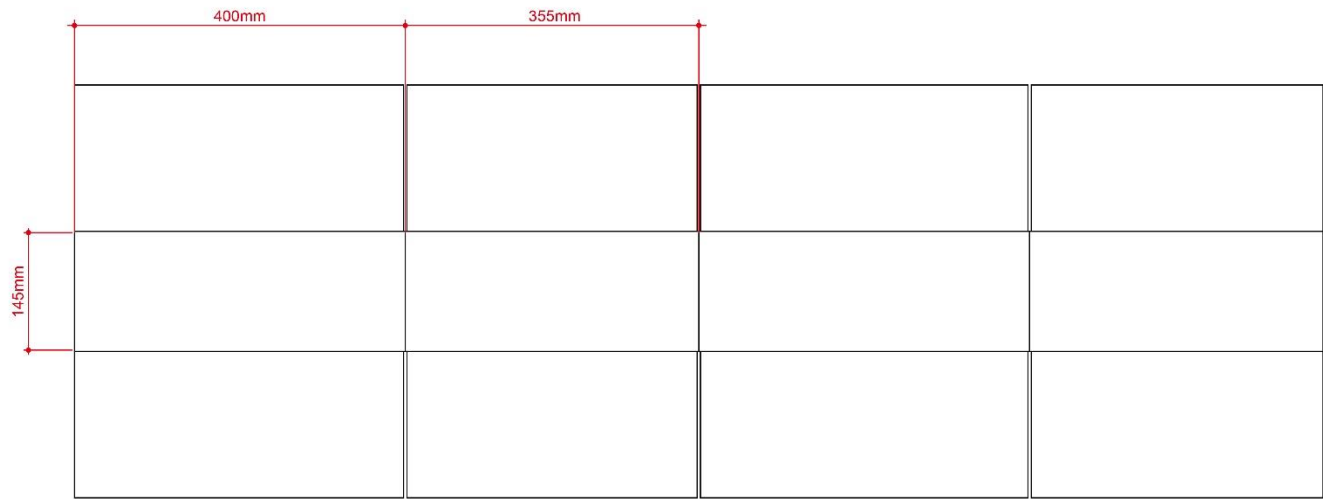
음성검색
 NUUGU 음성검색: 리모컨의 [] 버튼을 누르고, 원하는 것을 검색해 주세요.
 음성으로 B tv 리모컨의 주요 기능(음량, 채널, 뒤로, 앞으로, 홈, 전원)을 쉽게 찾을 수 있으며, 또한 인공지능 NUUGU의 다양한 생활 편의 서비스와 스마트 홈 서비스를 함께 즐길 수 있습니다.
 ※ 자세한 이용방법은 NUUGU 홈페이지(www.nuug.co.kr) 또는 셋톱박스 이용가이드를 참고해 주세요.

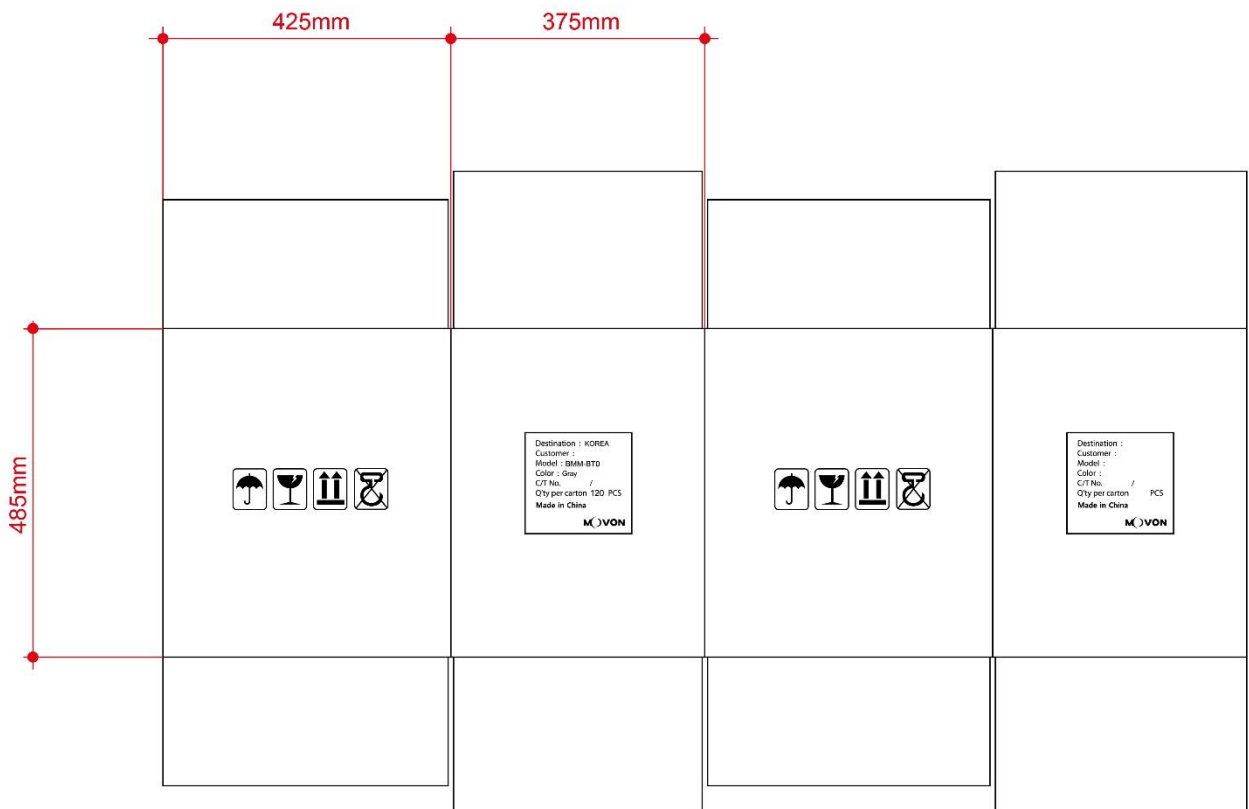
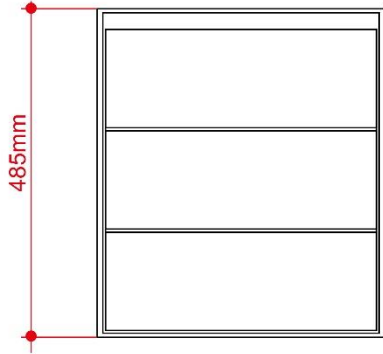
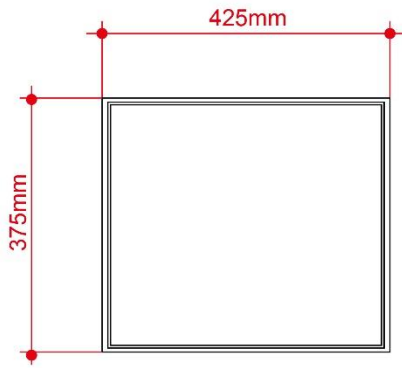
2.1.10 Carton Box Layout

Inner Box



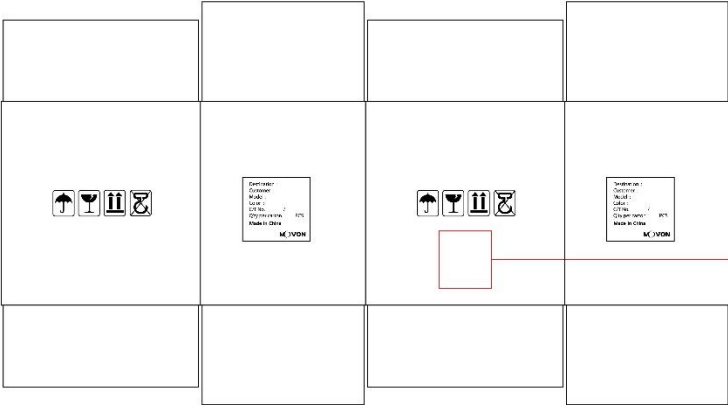
(에어비닐 포장된 개체 사이즈)





2.1.11 Label Sticker Specification

			문 델	ALT_BT12	작성일	2021. 08.18	발 신	담당	팀장	수 신	담당	팀장
Label Sticker Specification			품 명	Design Team	용 도							
			담당 자	심다경	기 타							



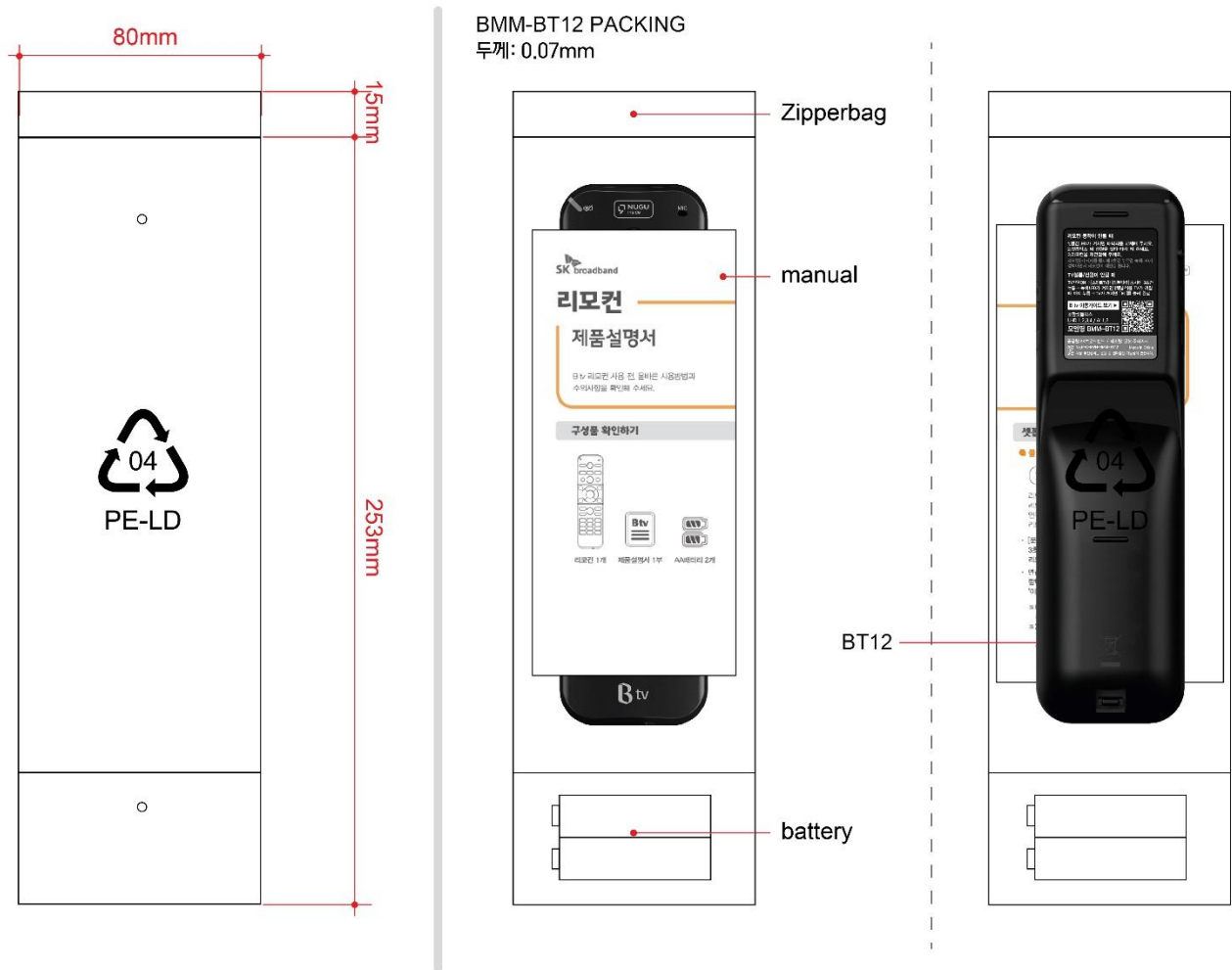
No. 01



Scale : 100 %

NO	NAME	COLOR	NO	NAME	COLOR
1	Sticker	Background(바탕): BLUE Text(문자): WHITE			

2.1.12 Packing Specification



2.2 Battery Specification

2.2.1 Model Name

KODAK Xtralife Alkaline Battery AA

2.2.2 TECHNICAL INFORMATION

SCOPE

This specification defines the technical requirements for alkaline cells distributed by Strand Europe Ltd (hereafter referred to as Strand).

If not otherwise specified, the cells should meet or exceed the requirements of:

IEC 60086-1,2,5 and **ANSI C18.1** (Part 1 and Part 2).

Additional requirements exist which are defined outside of this document but are referenced explicitly within this engineering specification.

In case of any subject which is not covered with this specification, the Battery Supply Company and Strand should discuss and cooperate to solve this issue.

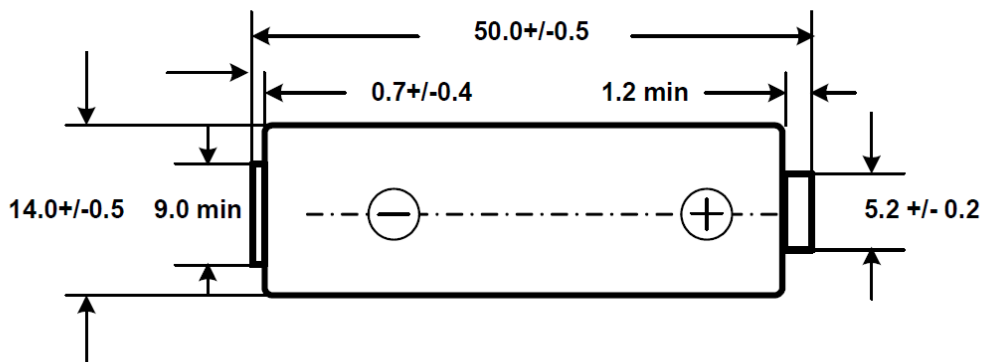
GENERAL:

Deviations from this specification must be documented in the suppliers drawings and require approval by Strand.

1.0 MECHANICAL REQUIREMENTS

1.1 Dimensions

If not otherwise specified in the drawing, the cell shall meet the dimensional requirements of standards listed in the scope



Dimensions are in millimeters and include label.

1.2 Weight

The weight of each cell is approximately:

22.0 g

1.3 Contamination

The cell shall not vent or leak or exhibit corrosion of metal parts as a result of exposure to any of the storage and / or operating tests of this specification for 7 years after date of manufacture. Leakage shall be determined by wiping the cell surface with a pH indicating paper or solution. Corrosion shall be determined by visual inspection.

1.4 Trade dress

The visual appearance shall meet the requirements of the designated Strand Artwork.

1.4.1 Date Code

Each cell unless otherwise agreed upon, shall be marked with a date code according to the relevant Date Code Specification.

1.4.2 General Appearance

The cell shall be clean. The printing on each cell should be legible and permanent. Blemishes, if any, shall conform to mutually agreed upon limit samples.

2.0 ELECTRICAL REQUIREMENTS

Note: Performance tolerances and acceptance limits are documented in paragraph 5 of this specification.

Unless otherwise stated, all measurements are to be performed at a

Standard Environment of:

**20°C ± 2 °C
50 ±15 % R.H.**

All samples shall be normalized for 24 hours at the above environment prior to measurement. The measurement accuracy for DCV (Direct Circuit Voltage) shall be ±0.1% or better. The load resistance of the total circuit shall be accurate within ±0.5% of the specified value.

2.1 Open Circuit Voltage

min:
max:

**OCV
1.50 VDC
1.65 VDC**

2.2 Closed Circuit Voltage

min:
Load Resistance (total circuit ±0.5%)
the measurement shall occur
after closing the circuit.

**CCV
1.4 VDC
3.90 Ohms
200 ±10 ms**

2.3 Cell Impedance

max:	0.15 Ohms
Frequency:	1000 Hz
A.C. Sine Wave Current	0.1 mA

2.4 Cell Service Life

Each cell shall be discharged according to each specified test method. The closed circuit voltage shall be monitored throughout the discharge period. The service life shall be reported as the total number of hours/minutes/cycles before the closed circuit voltage first falls below the specified Cutoff Voltage. Acceptance criteria are described in section 5.0.

2.4.1 1000 mA Photo Flash Test (ANSI / IEC)

Current Load	1000 mA
Cycle Time	10 seconds /minute
	1 Hour Per Day
Cutoff Voltage	0.9 Volt
Minimum Average Duration	360 cycles

2.4.2 Digital Camera Test (ANSI/IEC)

Load	1.5 W / 0.65 W
Cycle Time	2 sec at 1.5 Watts
	28 sec at 0.65 Watts
	5 minutes per 60 minutes
	24 HPD
Cutoff Voltage	1.05 Volt
Minimum Average Duration	52 cycles

2.4.3 Transistor Radio Test (IEC / ANSI)

Load Resistance ($\pm 0.5\%$)	43.0 Ohms
Cycle Time	4 hours per day
Cutoff Voltage	0.9 Volt
Minimum Average Duration	82 hours

2.4.4 Toy, Motor Test (IEC / ANSI)

Load Resistance ($\pm 0.5\%$)	3.9 Ohms
Cycle Time	1 hour per day
Cutoff Voltage	0.8 Volt
Minimum Average Duration	6.8 hours

2.4.5 Digital Audio (ANSI)

Current Load	100 mA
Cycle Time	1 hour per day
Cutoff Voltage	0.9 Volt
Minimum Average Duration	20,0 hours

2.4.6 Remote Control Test (IEC / ANSI)

Load Resistance ($\pm 0.5\%$)	24 Ohms
Cycle Time	15s/min, 8h per day
Cutoff Voltage	1.0 Volt
Minimum Average Duration	41 hours

2.4.7 Electronic Game Test (IEC / ANSI)

Current Load	250 mA
Cycle Time	1 hour per day
Cutoff Voltage	0.9 Volt
Minimum Average Duration	6.5 hours

2.4.8 Portable Lighting Test (IEC / ANSI)

Load Resistance ($\pm 0.5\%$)	3.3 Ohms
Cycle Time	4min/h, 8h per day
Cutoff Voltage	0.9 Volt
Minimum Average Duration	300 minutes

2.4.9 Toothbrush Test (ANSI)

Current Load	500 mA
Cycle Time	2min on/13 min off, 24 HPD
Cutoff Voltage	0.8 Volt
Minimum Average Duration	2.5 hours

2.4.10 Lot acceptance test

Load Resistance ($\pm 0.5\%$)	3.9 Ohms
Cycle Time	continuous
Cutoff Voltage	0.9 Volt
Minimum Average Duration	180 min

3.0 ENVIRONMENTAL REQUIREMENTS

3.1 Non Operating Environments

After being subjected to any of the non-operating environments as defined in this section (3.1.1 through 3.1.5) the cell shall meet the requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification, in addition to the requirements specified with each test below.

3.1.1 Shelf Life - The cells are to be stored in air at: 20°C ± 2°C
50 ± 15 % R.H.
for a period of: 36 months.

At intervals of 12 months the cells shall meet the requirements of section1.0, 2.1, 2.2 and 2.3 of this specification following IEC requirements. They shall also meet the requirements below from section 2.4.1 and 2.4.3 such that:

	<u>12 months</u>	<u>24 months</u>	<u>36 months</u>
2.4.1 Photopulse 1000mA	310 cyc	270 cyc	255 cyc
2.4.3 43 Ω Radio:	78 h	74 h	70 h

3.1.2 Cold Storage in Air

The Cells are to be stored at -20°C ±2°C
for a period of 8 hours
After normalizing to Standard Environment the requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification shall be met.
Requirement 2.4.1 shall also be tested to meet:

	<u>M.A.D.</u> (100%)
2.4.3 43 Ω Radio:	82.0 h

3.1.3 Very Hot Storage in Air

The Cells are to be stored at 70°C ±2°C
for a period of 7 days
After normalizing to Standard Environment the requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification shall be met.
Requirement 2.4.1 shall also be tested to meet:

	<u>M.A.D.</u> (95%)
2.4.3 43 Ω Radio	78 h

3.1.4 Hot Storage in air ("45°C")

The Cells are to be stored at

45°C ±2°C

55 ±20 % R.H.

for a period of

90 days

After normalizing to Standard Environment the requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification shall be met.

Requirement 2.4.1 and 2.4.3 shall also be tested to meet:

M.A.D.

2.4.1 Photopulse 1000mA

310 cyc

2.4.3 43 Ω Radio:

78 h

3.2 Operating Environment

The cells shall be exposed to the respective operating environments for **24 hours** prior to testing. The environment shall be maintained throughout the discharge test.

3.2.1 Hot Operation

The cells shall be discharged at a temperature of:

45°C ±2°C

The requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification shall be met.

Requirement 2.4.1 shall also be tested to meet:

M.A.D.

(100%)

2.4.3 43 Ω Radio

82 h

3.2.2 Cold Operation

The Cells shall be discharged at a temperature of

0°C ±2°C

The requirements of section 1.0, 2.1, 2.2 and 2.3 of this specification shall be met.

Requirement 2.4.1 shall also be tested to meet:

M.A.D.

(33%)

2.4.1 43 Ω Radio

28 h

4.0 SAFETY / ENVIRONMENTAL REQUIREMENTS

It is intended that the overall safety characteristics of the cell equal or exceed those of present consumer Leclanche and alkaline cells. The supplier shall provide the necessary Material Safety Data Sheets / Product Safety Information.

4.1 Safety tests

The batteries pass all tests and requirements described in:

- 1) IEC 60086-5
- 2) ANSI C18.1M part 2

4.2 Heavy Metal Contents

The heavy metal contents of the cell shall conform to the applicable regulations stated by the applicable national and international authorities.

Mercury limit (per cell weight)	5 ppm
Cadmium limit (per cell weight)	20 ppm
Lead limit (per cell weight)	40 ppm

2.2.3 Certificate (Safety)

검 사 성 적 서

한국화학융합시험연구원

경기도 과천시 교육원로 98

Tel: 02-2164-0011 Fax: 02-2634-1008

접수번호 : SSK-000034

페이지 1 / 3



1. 의뢰자

- 상호 (업체명) : 모본 주식회사
- 성명 (대표자) : 송상희
- 주 소 : 서울특별시 강남구 삼성동 140-28 현죽빌딩 6층
- 의뢰일자 : 2016년 03월 02일

2. 검사성적서의 용도 : 자율안전확인대상공산품의 신고

3. 검사품목 / 시료명 : 건전지

- 안전기준상의 모델 구분 : LR6
- 제조자 제시 모델명 : KODAK Xtralife Alkaline AA Battery
- 제조국명 : 중국
- 제조업체명 : KODAK Batteries

4. 검사기간 : 2016년 03월 02일 ~ 2016년 04월 08일

5. 검사방법 : 자율안전확인 안전기준 부속서 5

[국가기술표준원 고시 제2015-685호(2015. 12. 30)]

6. 검사장소 : 경기도 과천시 교육원로 98

7. 검사환경 : 온도 (20 ± 2) °C, 습도 (55 ± 5) % R.H.

8. 검사결과 : 합격 (항목별 검사결과 붙임 참조)

확 인	작성자	성 명 원지일	기술책임자	성 명 홍인선
		Won Ji-I		Hong In-seon

위 성적서는 한국인정기구(KOLAS)로부터 공인받은 분야에 대한 검사결과입니다.

2016년 04월 08일



위변조 확인용 QR code

한국인정기구 인정

한국화학융합시험연구원장



비고 1. 이 성적서는 의뢰자가 제시한 품목(또는 시료)에 대한 검사결과로서 전체 제품에 대한 품질 및 성능은 보장하지 않습니다.

2. 이 성적서는 당 검사기관의 사전 서면동의 없이 광고, 선전 등 홍보 및 소송용으로 사용될 수 없으며, 용도 이외의 사용을 금합니다.

한국화학융합시험연구원

경기도 과천시 교육원로 98

Tel: 02-2164-0011 Fax: 02-2634-1008

접수번호 : SSK-000034

페이지 2 / 3



검 사 항 목	단위	시료구분	기 준 치	검 사 결 과	합부 판정
겉모양	-		사용상 지장이 생기는 이물, 오염, 흠집 및 변형이 없어야 하고, 표시가 명확할 것	사용상 지장이 생기는 이물, 오염, 흠집 및 변형이 없고 표시가 명확함	합격
개로전압	V		1.50 + 0.15, - 0.05	1.63	합격
수은	mg/kg		1 이하	0	합격
카드뮴	mg/kg		10 이하	0	합격
납	mg/kg		4 000 이하	1	합격
내누액	-		최대 치수를 초과하는 변형 및 누액이 없을 것	최대 치수를 초과하는 변형 및 누액이 없음	합격

- 이 하 여 백 -

2. 3 Product Specification

Model Name	BMM-BT12
Compliant	Bluetooth Specification V5.0
Profile	GAP, GATT, HID over GATT, HIDS, BAS, DIS, IAS
Carrier Frequency	2402 MHz to 2480 MHz
Modulation Method	GFSK, 1Mbps, 0.5BT Gaussian
Maximum Data Rate	Asynchronous: 2178.1kbps / 177.1kbps Synchronous: 1306.9kbps / 1306.9bpsa
Transmit Power	6dBm ±2dBm
Coverage Range	10m
Receiver Sensitivity	-80 dBm / 0.1% BER
Weight	128g (배터리 포함)
Dimension (mm)	48(W) X 175(L) X 23mm(T)
Operating Temperature	-10° to +50°C
Storage Temperature	-20° to +70°C
Battery	KODAK Xtralife Alkaline Battery AA 2,700mAh⁽¹⁾

(1) Standard capacity (75Ω continuously discharge at 20°C, End point voltage=0.8 volts)

2. 4 Electrical Characteristics

item		min.	Typ.	max.	unit	remark
Operating voltage		1.8	3.0	3.2	V	AA Alkaline Battery
Current	IR Sleep Mode	-	10	-	μA	Standby
	BLE Sleep Mode	-	25	-	μA	Standby
	Voice Search (BT / HID)	-	6	-	mA	
	IR Key	-	30	-	mA	STB Key
	BLE Key	-	2	-	mA	TV Key
	BUZZER	-	10	-	mA	
	Backlight	-	15	-	mA	

2.5 Bluetooth Specification

2.5.1 General Specification

Index	Description
Frequency	2,402MHz ~ 2,480MHz
Profile	GAP, GATT, HID over GATT, HIDS, BAS, IAS
RF	Frequency Hopping Spread Spectrum (FHSS)
Hopping Channel	40 channel with 2MHz-spacing (2,400~2,480 MHz)
Modulation Type	Gaussian Frequency Shift Keying (GFSK)
RF output	6dBm $\pm$ 2dBm

2.5.2 Bluetooth RF Specification

Index		Test condition					min.	max.	unit
		Test mode	Hopping	Packet type	Payload	No. of packet			
Average power		TX	on	DH1	PRBS9	5		8	dBm
Modulation	$\Delta f1_{avg}$	TX	off	DH1	BS55 BS0F	5		250	kHz
	$\Delta f2_{max}$						185		kHz
	$\Delta f2_{avg}/\Delta f1_{avg}$						0.88	-	
ICFT		TX	on		PRBS9	5	-75	75	kHz
Carrier frequency drift		TX	on	DH5	BS55	5	-40	40	kHz
sensitivity	Single slot	Loop back	off	DH1	PRBS9		-70	-	dBm
	Multi slot	Loop back	off	DH5	PRBS9		-70	-	dBm

2.6 Functionality

2.6.1 Button Functionality

No	Button	Function	LED	Description	Status	Remarks
1	BTV Power TV Power TV Volume +/- Mute Menu Search REW/FF Channel +/- Btv Volume +/- Home D-PAD / OK back Exit Previous Favorite Program time table 1 ~0, *, # ZEM KIDS SMART TV	IR Key Data BLE Key Data	GREEN LED Or BLUE LED (Smart TV)	Short Press	LED blinking (1 time)	- Transmit IR Signal - Transmit BLE Signal
2	[홈] + [*]	Un-pairing	GREEN LED	Long Press (3 sec)	LED blinking (5 sec)	- Erase Pairing history
3	NUGU Voice Search	Voice Search Entering Pairing mode	GREEN LED	Short Press	On/Off	- Run Voice search (UI) - Unpairing ↔ Pairing mode
4	[BTV전원] + [외부입력]	IR Auto Setting mode (All TV brand)	GREEN LED	Long Press (3 sec)	On	- Enter Auto IR setting mode - Press Channel button when <Auto Setting mode> up until TV power-off - Press [OK] button when TV power-off.
5	[*] + [#]	Pairing	GREEN LED	Long press (3 sec)	LED Blink every 1 sec	- Entering Pairing mode
6	[*] + 4방향	Drag Mode	GREEN LED	Short Press	ON OFF	- Browser UI Mouse Cursor

No	버튼	기능	LED	버튼 동작	Release	비고
7	[BTV전원] + [1]	Auto IR setting (Samsung/LG)	GREEN LED	Long Press (3 sec)	ON	- Enter Auto IR setting mode - Press Channel button when <Auto Setting mode> up until TV power-off - Press [OK] button when TV power-off.
8	[*] + [9]	MODE1/2	GREEN LED	Long Press (3 sec)	MODE2 : Blink 4 times MODE1 : Blink 2 times	- IR mode 1 or 2 switch
9	[*] + [5]	Backlighting On/Off Switch (toggle)	GREEN LED	Long Press (3 sec)	OFF : blink 4 times ON : blink 2 times	- Manual control / Backlit (ON/OFF, factory seting: ON).
10	[OK] + [TV전원]	IR Learning	GREEN LED	Long Press (3 sec)	ON	- If no key input on IR learning mode → Terminate IR learning mode after 60 sec (LED Blink 3 times) - Press [OK] Button on IR learning mode → Terminate IR learning mode (LED blink 3 times) - Press Target TV (TV power, TV vol, Output) on IR learning mode → LED blink 1 time, IR receiving status 15 sec, LED on - If no key input of IR receiving status → back to IR Learning mode - If IR signal receive properly on IR receiving status → Green LED blinks 3 times → back to learning mode If IR signal receive non-properly on IR receiving status → RED LED blinks 3 times → back to learning mode

2.6.2 LED Functionality

No	Status	LED Indication			Remarks
		Green LED	Blue LED	Red LED	
1	Pairing mode	Every 1 sec			Blink for 20 sec during pairing process Pairing success: Blink 5 times
2	Unpairing	5 times			
3	NUGU voice search	On (Searching)			Off
4	음성검색 버튼 이 외 Button Press	Blink 1 time			
5	음성검색 버튼, Smart TV 버튼, TV 버튼 in SMART TV MODE 외 Button Press	Blink 1 time			
	SMART TV Button Press TV Key Press in SMART TV MODE		Blink 1 time		
6	MODE1-> MODE2	Blink 4 time			
7	TV synchronization (Setting)	On (for 15 sec)			
8	TV synchronization	Blink 3 time			
9	Button Press(Low Battery status)			Blink 1 time	
	Status	Back-light LED			Remarks
11	RCU Pick up	Light ON (2 sec)			OFF after 2 sec

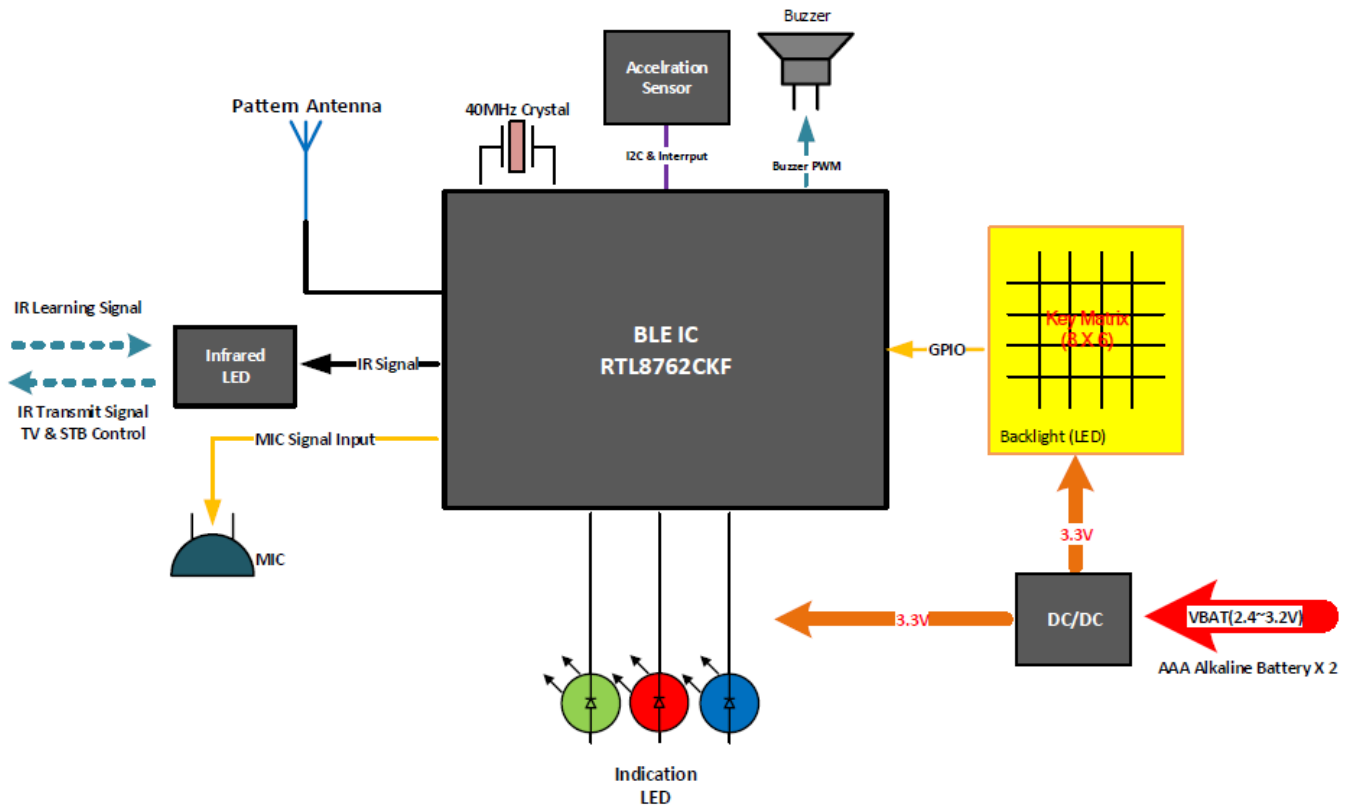
2.6.4 IR/BLE Key Code

No	Key	Code			
		IR(NEC Simple repeat)		RF(BLE)	
	Key name	MODE1 CUSTOM 0x807F	MODE2 CUSTOM 0xF5A0	Page	Usage ID
1	통합전원	Btv 전원 + TV 전원	Btv 전원 + TV 전원		
2	TV 전원	삼성 + LG	삼성 + LG		
3	스마트TV	삼성 + LG	삼성 + LG		
4	바로가기	0x58A7	0x587A	0x07	0x005800
5	선호채널	0x56A9	0x569A	0x07	0x005600
6	편성표	0x6D92	0x6D29	0x07	0x006D00
7	외부입력	[0x01FE]+[0x0BF4]	[0x01FE]+[0x0BF4]		
8	조용히	0x45BA	0x45AB	0x07	0x004500
9	Btv 음량+	0x43BC	0x43CB	0x07	0x004300
10	Btv 음량-	0x42BD	0x42DB	0x07	0x004200
11	검색	0x4FB0	0x4F0B	0x07	0x004F00
12	홈	0x02FD	0x02DF	0x07	0x000200
13	Zem KIDS	0x59A6	0x596A	0x07	0x005900
14	TV 음량+	삼성 + LG	삼성 + LG		
15	TV 음량-	삼성 + LG	삼성 + LG		
16	▲(상)	0x49B6	0x496B	0x07	0x004900
17	▼(하)	0x4AB5	0x4A5B	0x07	0x004A00
18	◀(좌)/ I ◀◀뒤건너뛰기	0x4BB4	0x4B4B	0x07	0x004B00
19	▶(우)/▶▶ I (앞건너뛰기)	0x4CB3	0x4C3B	0x07	0x004C00
20	OK/▶/II(재생/일시정지)	0x46B9	0x469B	0x0C	0x0041
21	채널^	0x40BF	0x40FB	0x07	0x004000
22	채널v	0x41BE	0x41EB	0x07	0x004100
23	이전	0x4EB1	0x4E1B	0x07	0x004E00
24	나가기	0x34CB	0x34BC	0x07	0x003400
25	마이크	0xD12E	0xD1E2	0x07	0x002300
26	◀◀(되감기)/ R	0x609F	0x60F9	0x07	0x006000
27	▶▶(빨리감기) / B	0x639C	0x63C9	0x07	0x006300
28	1	0x21DE	0x21ED	0x07	0x002100
29	2	0x22DD	0x22DD	0x07	0x002200
30	3	0x23DC	0x23CD	0x07	0x002300
31	4	0x24DB	0x24BD	0x07	0x002400
32	5	0x25DA	0x25AD	0x07	0x002500
33	6	0x26D9	0x269D	0x07	0x002600
34	7	0x27D8	0x278D	0x07	0x002700
35	8	0x28D7	0x287D	0x07	0x002800
36	9	0x29D6	0x296D	0x07	0x002900
37	*/문자지움	0x2AD5	0x2A5D	0x07	0x002A00
38	0	0x20DF	0x20FD	0x07	0x002000
39	#/문자변환	0x2BD4	0x2B4D	0x07	0x002B00
40	Btv 전원	0x01FE	0x01EF	0x07	0x000100

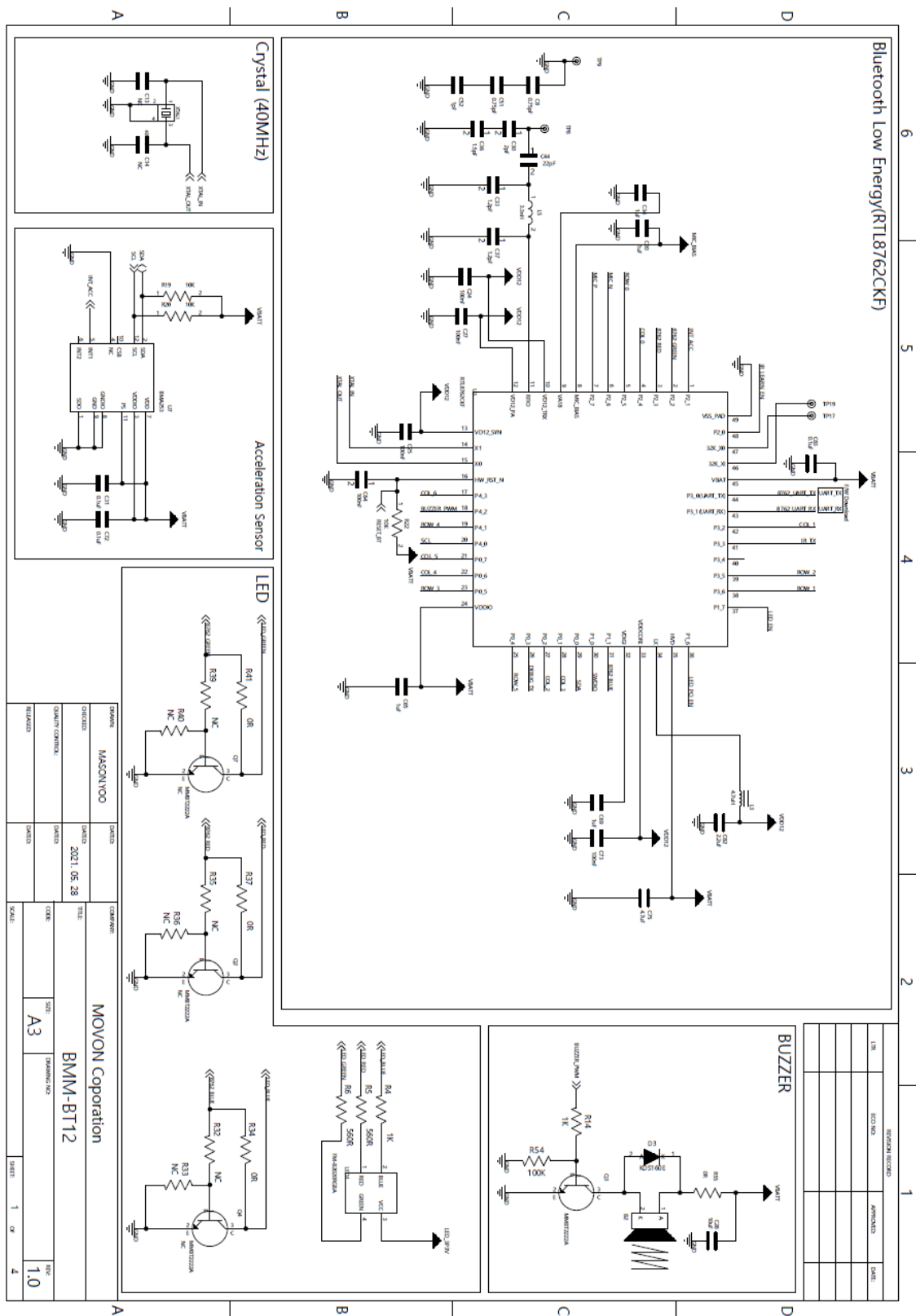
2.6.4 IR/BLE Key Code

41	Normal Battery	0x3AC5	0x3A5C	0x07	0x003A00 +0x00FFFF
42	Low Battery	0x3BC4	0x3B4C	0x07	0x003B00 +0x00FFFF
43	Empty Battery	0x3CC3	0x3C3C	0x07	0x003C00 +0x00FFFF
44	Break Data Code	0xFF00	0xFF00	0x07	0x00FFFF
45	RCU Ver#3	0xF310 ~ 0xF314	0xF310 ~ 0xF314		
46	RCU Ver#4	0xF4A0 ~ 0xF4A4	0xF4A0 ~ 0xF4A4		
47	RCU Ver#5	0xF510 ~ 0xF514	0xF510 ~ 0xF514		
48	드래그 모드(상)	0x8778	0x8787	0x07	0x008700 +0x00FFFF
49	드래그 모드(하)	0x827D	0x82D7	0x07	0x008200 +0x00FFFF
50	드래그 모드(좌)	0x837C	0x83C7	0x07	0x008300 +0x00FFFF
51	드래그 모드(우)	0x847B	0x84B7	0x07	0x008400 +0x00FFFF
52	음성 제한	0xD22D	0xD2D2		
53	Btv 제어모드	0x6699	0x6699	0x07	0x006600
54	TV 제어모드	0x6798	0x6789	0x07	0x006700
55	TV 제어모드 사용	0x6897	0x6879	0x07	0x006800

2.7 Block Diagram



2.8 Schematic



6

5

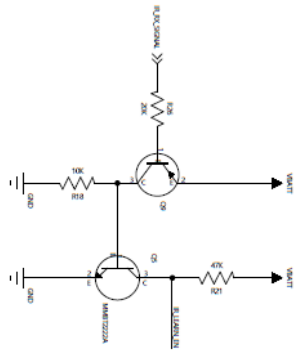
4

3

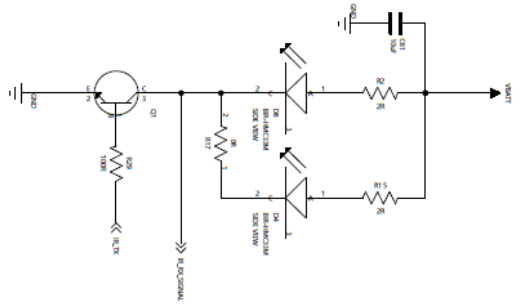
2

1

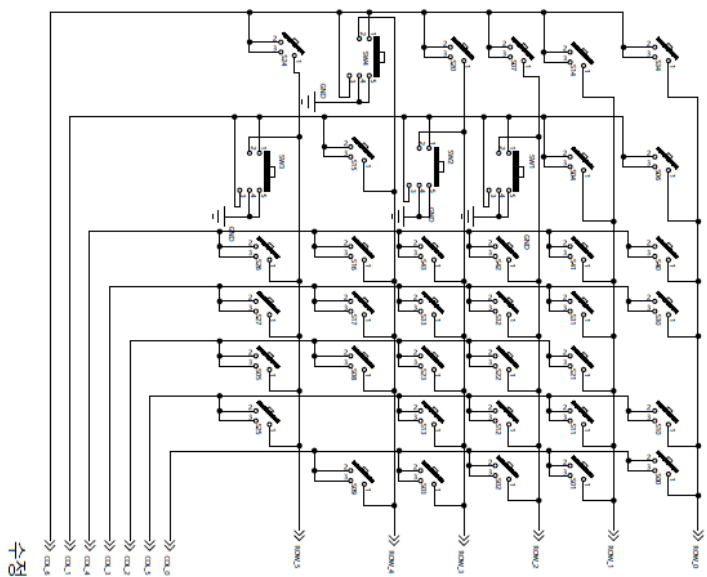
IR LEARNING PART



IR Part IR Learning function added!



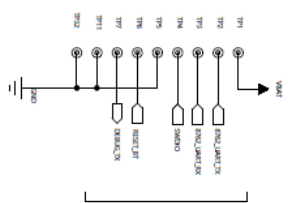
KEY MATRIX PART Carbon Type



DRAWING		DATE		DRAWING		TITLE	
MASON/VOO		2021.05.28		BMN-BT12		REV	
CHECKED		DATE		SCALE		SHEET	
QUANTITY CONTROL		DATE		A3		3 OF 4	
REMARKS		DATE		1.0			

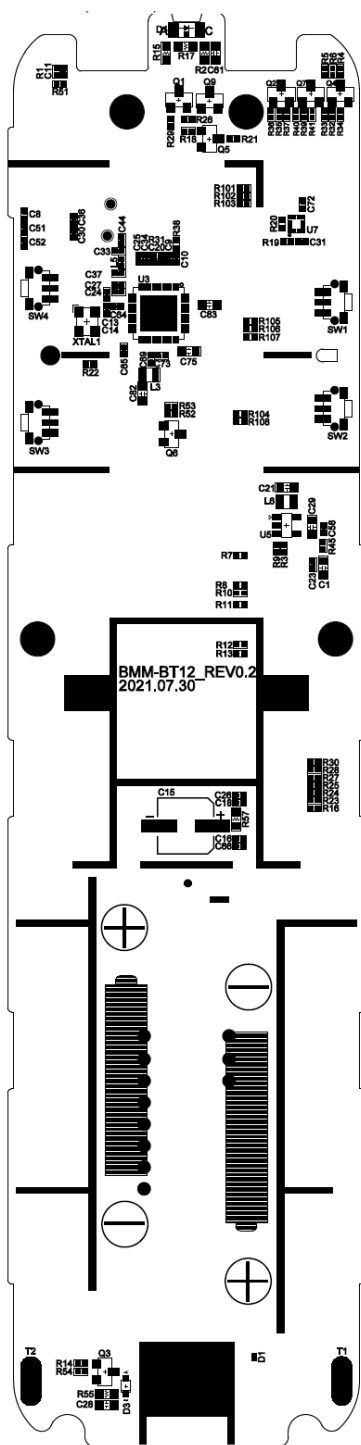
REVISION RECORD			
VER.	ECO NO.	APPROVED	DATE

Test Point
R1153C07K_P01

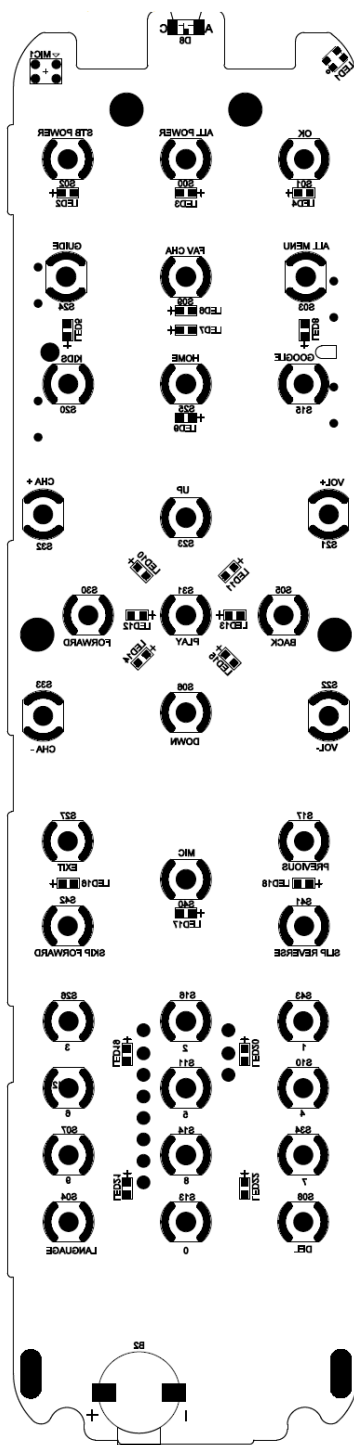


DRAWING		COMPANY	
MASONVVO		MOYON Coporation	
CHECKED		DATE	
2021.05.28		TITLE	
QUANTITY CONTROL		BMM-BT12	
RELATED		SCALE	
A3		1.0	
SHEET		4 OF 4	

2.9 Layout

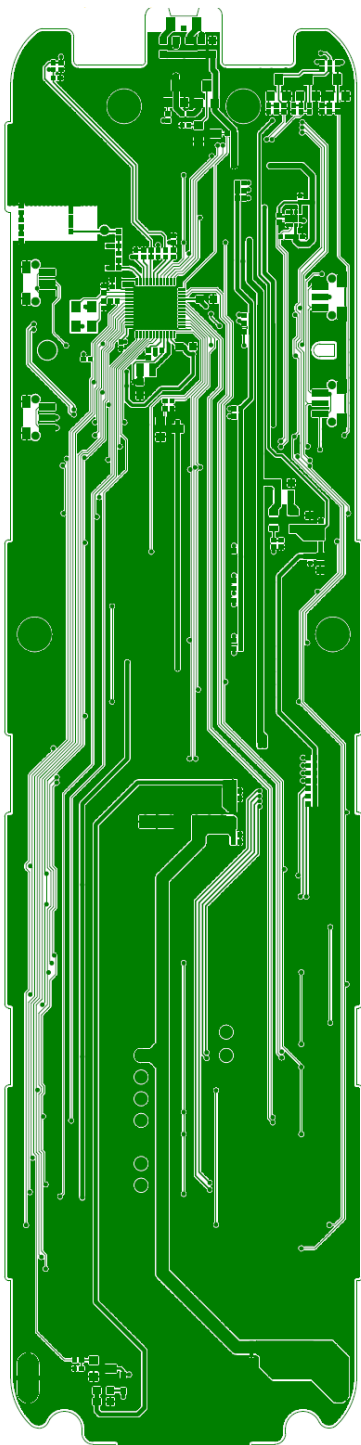


MAIN TOP Location

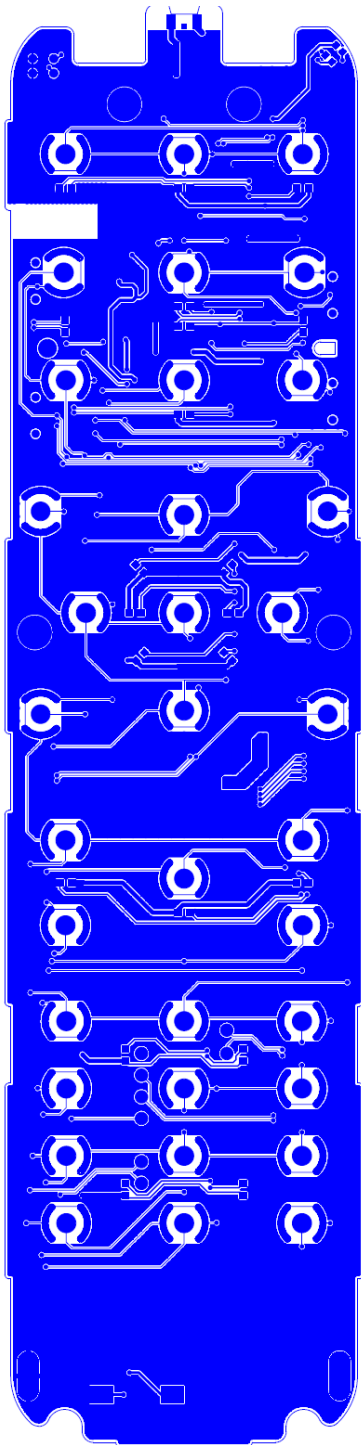


MAIN BOT Location

2.10 Layer Gerber



MAIN TOP Layer

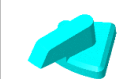


MAIN BOT Layer

2.11 Part List (Hardware)

NO.	Description	Part Number	Manufacturer	Usage (unit)	Location
1	Bluetooth IC (New)	RTL8762CKF	Realtek	1	U3
2	MICRO MEMS MIC, TOP type, Sensitivity -42dB	AOS3729A-T42-NXC ZTS6111	Sanico Ziltek	1	MIC1
3	LED, SMD, RGB	FM-B2020RGBA	NATIONSTAR	1	LED1
4	Tact switch	SKRTLAE010	ALPS	4	SW1,SW2,SW3,SW4
5	LED, TOP VIEW	BL-HZ336G-L3-TRB(BIN : P4-2) FC-DA1608WD-460H5(BIN : B2-2, B2-3)	BRIGHT NATIONSTAR	16	LED2,LED3,LED4,LED5,LED6, LED8,LED9,LED12,LED13,LE D16,LED17,LED18, LED19,LED20,LED21,LED22
6	Buzzer (New)	BM9027S	D&F	1	B2
7	IR LED, SMD, IR Emitter, Sideview	BIR-HMC33M-2-TRCA	BRIGHT	1	D4
8	Acceleration sensor	BMA253 DA280B KXTJ3-1057	BOSCH MIRAMEMS KIONIX	1	U7
9	40MHz, Crystal, 3225, 7pF, +-10ppm, SMD(New)	E3SB40E00006DE	HOSONIC	1	XTAL1
10	Diode	KDS160E-RTK/P	KEC	1	D3
11	IC, Boost Convertor	IM8132S TPS61097A-33DBVR	IMS TI	1	U5
12	NPN TR	MMBT2222A MMBT222AG	Onsemi UTC	4	Q1,Q3,Q5,Q6
13	PNP TR	MMBT2907A	Onsemi	1	Q9
14	IND, 3.3nH, 1005 SMD	HK1005-3N3S-T	TAIYO YUDEN	1	L5
15	Power Inductor, 4.7uH	MCL2012S4R7MT	SUNLOAD	1	L3
16	Power Inductor, 10uH	MCL2012H100MT	SUNLOAD	1	L6
17	CAP, AL, 100uF, 16V, 6.3X5.7 SMD	VE-101M1CTR-0605 RV2-16V101MSU-R	SGP	1	C15
18	CAP, CER, 0.75pF, 50V, ±0.25pF, 1005 SMD	GJM1551C1HR75CB01	Murata	2	C8,C51
19	CAP, CER, 1pF, 50V, ±0.25pF, 1005 SMD	GJM1551C1H1R0CB01	Murata	1	C52
20	CAP, CER, 1.5pF, 50V, ±0.25pF, 1005 SMD	GJM1551C1H1R5CB01	Murata	1	C36
21	CAP, CER, 1.2pF, 50V, ±0.25pF, 1005 SMD	GJM1551C1H1R2CB01	Murata	2	C33,C37
22	CAP, CER, 2pF, 50V, ±0.25pF, 1005 SMD	GJM1551C1H2R0CB01	Murata	1	C30
23	CAP, CER, 22pF, 50V, ±5%, 1005 SMD	GJM1552C1H220B01	Murata	1	C44
24	CAP, CER, 10uF, 10V, ±10%, 1608 SMD	GRM188R61A106KE69	Murata	4	C21,C28,C29,C61
25	CAP, CER, 0.1uF, 10V, ±10%, 1608 SMD	GRM188R61A104KAAJ	Murata	1	C83
26	CAP, CER, 2.2uF, 10V, ±10%, 1608 SMD	GRM188R61A225KAAJ	Murata	2	C1,C82
27	CAP, CER, 4.7uF, 10V, ±10%, 1608 SMD	GRM188R61A475KAAJ	Murata	1	C75
28	CAP, CER, 0.1uF, 10V, ±10%, 1005 SMD	GRM155R61A104KA01	Murata	14	C11,C16,C18,C23,C24,C25,C 26,C27,C31, C58,C64,C66,C72,C73
29	CAP, CER, 1uF, 10V, ±10%, 1005 SMD	GRM155R61A105KE15	Murata	6	C9-10,C20,C34,C65,C69
30	RES, 100KΩ 1005J SMD	MCR01MZSJ_104J	ROHM	4	R3,R22,R52,R54
31	RES, 47KΩ 1005J SMD	MCR01MZSJ_473J	ROHM	1	R21
32	RES, 0ohm 1608J SMD	MCR03MZSJ_000J	ROHM	3	R17,R55,R57
33	RES, 0ohm 1005J SMD	MCR01MZSJ_000J	ROHM	4	R34,R37,R41,R45
34	RES, 2ohm, 1608J SMD	MCR03MZSJ_002J	ROHM	2	R2,R15
35	RES, 56ohm, 1005J SMD	MCR01MZSJ_560J	ROHM	2	R104,R107
36	RES, 200ohm 1005J SMD	MCR01MZSJ_201J	ROHM	2	R23,R38
37	RES, 390ohm 1005J SMD	MCR01MZSJ_391J	ROHM	2	R10,R11
38	RES, 560ohm 1005J SMD	MCR01MZSJ_561J	ROHM	2	R5,R6
39	RES, 150ohm 1005J SMD	MCR01MZSJ_151J	ROHM	3	R101,R103,R105
40	RES, 100ohm 1005J SMD	MCR01MZSJ_101J	ROHM	9	R16,R24,R25,R27,R28,R29,R 30,R102,R108
41	RES, 1KΩ 1005J SMD	MCR01MZSJ_102J	ROHM	3	R4,R14,R53
42	RES, 20KΩ 1005J SMD	MCR01MZSJ_203J	ROHM	1	R26
43	RES, 10KΩ 1005J SMD	MCR01MZSJ_103J	ROHM	4	R9,R18,R19,R20

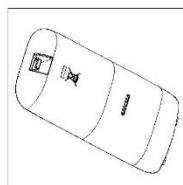
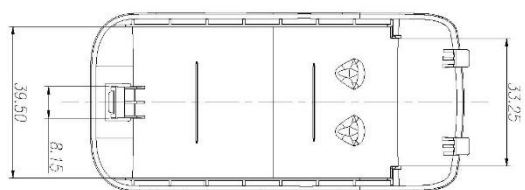
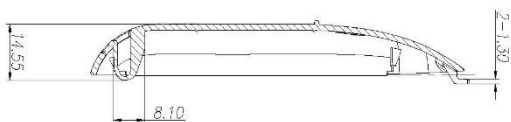
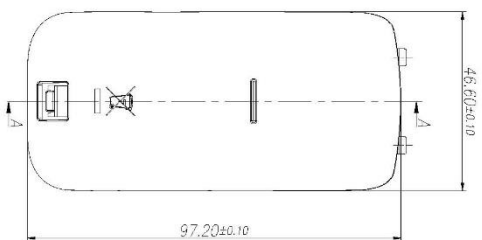
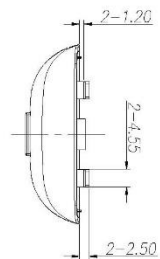
2.12 Part List (Mechanical)

BOM											작성		검토		승인	
제품코드			1X3		종 명		BMM-BT11		모 델 명		BMM-BT11					
작성부서			통신전자부		작 성 자		입 대 품		VER		0					
					단 계		MT		작성일자		2020.09.11					
											기타		MC,기중수행:1DR			
NO	IMAGE	PART NAME	PART NUMBER	MATERIAL	FINISH	MANUFACTURER	UNIT	QTY	Location	리소스명	소재	외장	열차	사양대행		
1		BMM-B401 COVER TOP	DMR14P01B0	*ABS (BLACK)	*Mold etching (VDI-24) *SLK	KINGTECH	EA	1	China	1X2						
2		BMM-BT11 COVER BOTTOM	DMR16P01B0	*ABS (BLACK)	*Mold etching (VDI-24/SPH-A)	KINGTECH	EA	1	China	1X2 신규						
3		BMM-BT08 BATTERY COVER	DMR12P03B0	*ABS (BLACK)	*Mold etching (VDI-24)	KINGTECH	EA	1	China	1X4 BT08 공통						
4		BMM-BT08 COVER NAVI	DMR12P04B1	*ABS (BLACK)	*Mold etching (VDI-24) *SLK	KINGTECH	EA	1	China	1X4 BT08 공통						
5		BMM-BT09 VOL. BUTTON	DMR13P03B0	*ABS (BLACK)	*Mold etching (VDI-24) *SLK	KINGTECH	EA	1	China	1+4 BT09 공통						
6		BMM-BT09 MUTE. BUTTON	DMR13P03B0	*ABS (BLACK)	*Mold etching (VDI-24) *SLK	KINGTECH	EA	1	China	1+4 BT09 공통						
7		BMM-BT08 IR LENS	DMR12P07B0	*PC (DARK VIOLET) *Translucent	*HIGH GLOSSY (SPH-A)	KINGTECH	EA	1	China	1X4 BT08 공통						
8		BMM-BT11 KEY PAD	DMR16P01B0	*SILICONE (BLACK)	*SLK *Hardness 55 *BLACKLIGHTING	QMEC	EA	1	China	1X20						
9		BMM-BT08 LED LENS	DMR12R02M0	*SILICONE (MILK WHITE)	*Hardness 55 *Mold etching (VDI-24)	QMEC	EA	1	China	1X20 BT08 공통						
10		BMM-BT08 SPRING PLUS	DMR12M0150	*TS304	*NE COATING	QMEC	EA	1	China	BT08 공통						
11		BMM-BT08 SPRING MINUS	DMR12M0250	*TS304	*NE COATING	QMEC	EA	1	China	BT08 공통						
공 용 자재																
12		BMM-BT08 SPRING MINUS_PLUS	DMR07M0350	*TS304	~	QMEC	EA	1	China	BMM-BT02 공통						
13		BMM-BT08 MIC MESH	DMR11T01B0	*MESH TAPE	~	QMEC	EA	2	China	BT07 공통						
14		BMM-BT08 SCREW	DMR12001B0	*F2.0 X 5.0(L X D) 5.5 (BLACK/ TAPPING 필드)	*절취리	QMEC	EA	2	China	-						
계						-	EA	16				W0.000	30.000	W0.000		

F.F-0101-05 (REV.1)



BATTERY COVER



Section A-A

NOTE

1. 設置好 BURR 型磨床車床後，對刀，對刀時，當刀尖與工件接觸時，Z 軸的數值為 0.0000。
2. Button 單邊出 3D Data 修補數據。
3. 修改數值 "1" 為 0.0000。
4. 按 F4 執行，完成修補。
5. 此時，設置好磨床後，即可修補。
6. 再次設置好磨床，修補數據 ①-B 修正，即可。

[illegible]

F.F-0101-05(REV.1)

모든 주식회사

COVER NAVI

변경 번호 REVISION NO. 	시정원장정보작성 완료 REV. P/NO. FCG NO. —	변경 내용 DESCRIPTION 삽입일 수정 (SK 요청사항)	날짜 DATE 18.03.06
---------------------------	--	--	------------------------

Section B-B

Section A-A

NOTE

1. 외표면 BURR 및 규질 등 유해한 흔적이 없도록.
2. 부식사항은 디자인 사양에 준함.
3. 저사상은 "R"은 최소 R값을 적용함.
4. 협도시 승인 후 양산 진행함.
5. 기타 외문사항은 설계자와 협의요망.
6. 저사자와 다른 공차는 일반공차 ①-A 참고 함 것.

4	DMR12P04B1	Cover navi	1	ABS (Black)	Mold etching (VDI-24) / Silk
번호 NO.	품번 PART_NO.	품명 PART_NAME	수량 Q'ty	사양 또는 재료 SPEC or MATERIAL	후처리 FINISHED
① 일반 허용공차 (=MM)	0 ~6	6 ~30	30 ~120	투상법 PROJECTILE	날짜 DATE
	A 0.05	0.1 0.15	0.15 0.2	척도 SCALE	파일명 FILE_NAME
	B 0.1	0.2 0.3	0.4 0.5	단위 UNIT	검정 REVISION
	C 0.2	0.3 0.4	0.5 0.6	3D_ANGLE PROJECTION	
			0.7 0.9	1/1	MP
				모델명 MODEL_NAME	BMM-BT08
				품명 PART_NAME	Cover navi
				품번 PART_NO.	DMR12P04B1

MOOVON CORPORATION

설계
DESIGN
검토
CHECKED
승인
APPROVED

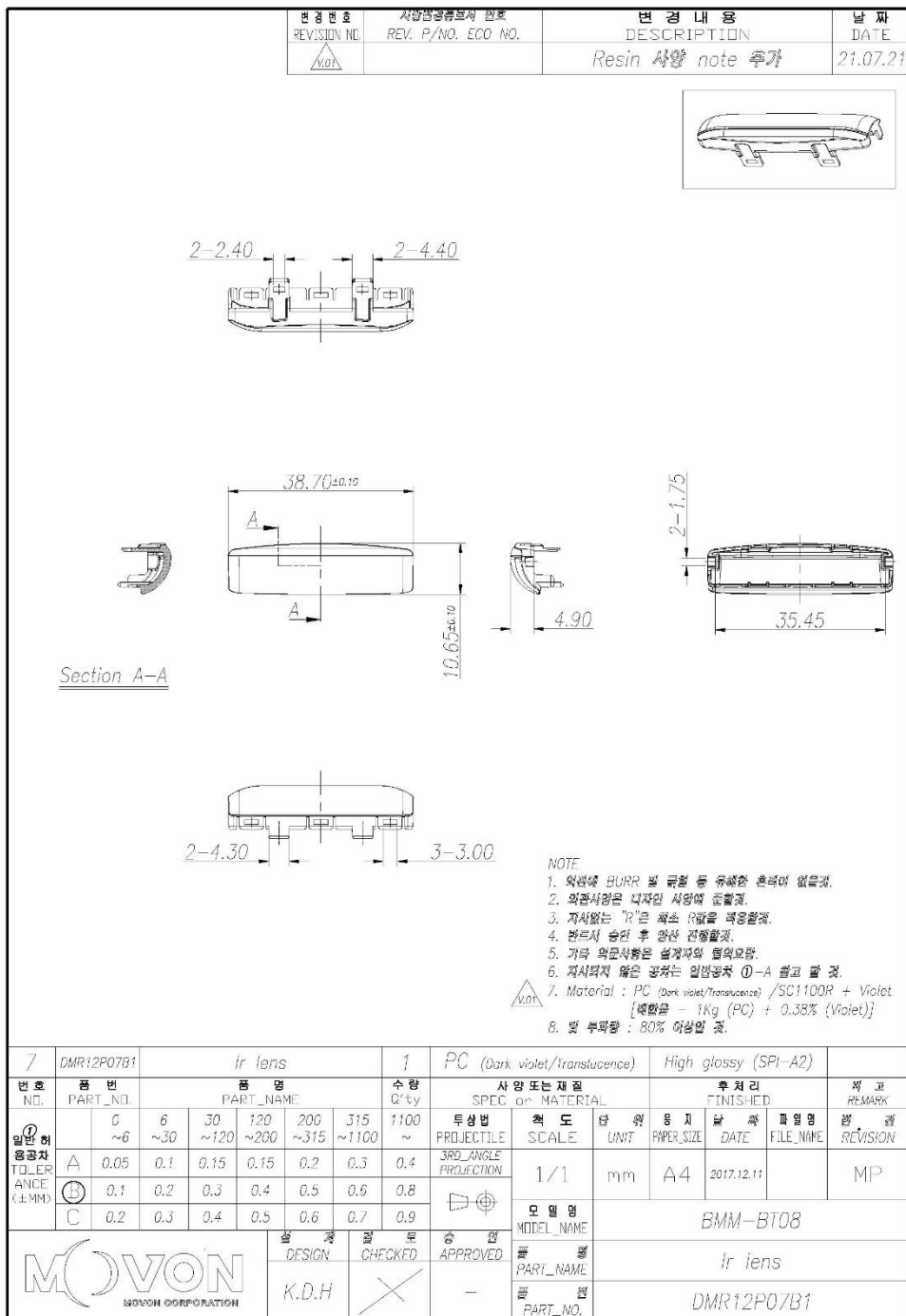
K.D.H

—

FJF-0101-04(REV.1)

모본 주식회사

IR LENS

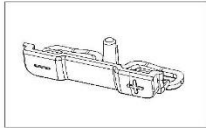


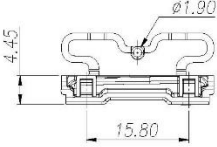
FJF-0101-04(REV.1)

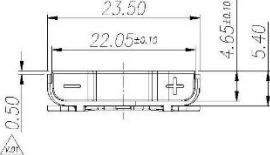
모본 주식회사

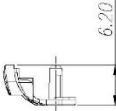
VOL BUTTON

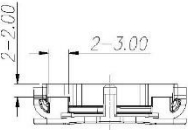
변경 번호 REVISION NO.	시행원장승인서 번호 REV. P/NO. ECO NO.	변경 내용 DESCRIPTION	날 짜 DATE
VOB1	ML-2020-000049	Parting 단위 재가 수정 (0.5mm 실패가 수정)	20.11.23













NOTE

- 외관상 BURR 등 결함 등 유해한 흔적이 없도록.
- 부착사양은 도파판 사양에 준함.
- 제시값은 "R"은 최소 R값을 적용함.
- 반드시 확인 후 양산 진행함.
- 기타 미문사항은 설계자와 협의요함.
- 제시되지 않은 공차는 일반공차 ①-A 참고 함.

번호 NO.	품 번 PART_NO.	품 명 PART_NAME	수량 Q'ty	사 양 또는 재 질 SPEC or MATERIAL	후 처리 FINISHED	비 고 REMARK
5	DMR13P02B1	Vol Button	1	ABS (Black)	Mold etching (VDI-24) / Silk	
① 일반 허용공차 TOLERANCE (±MM)				투상법 PROJECTILE	척 도 SCALE	단 위 UNIT
A	0.05	0.1	0.15	3RD ANGLE PROJECTION	1/1	mm
B	0.1	0.2	0.3			
C	0.2	0.3	0.4			
					도 열 명 MULLL_NAME	BMM-BT09
					부 명 PART_NAME	Vol Button
					부 번 PART_NO.	DMR13P02B1

설 계 DESIGN	검 토 CHECKED	승 인 APPROVED
K.D.H	X	-

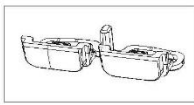


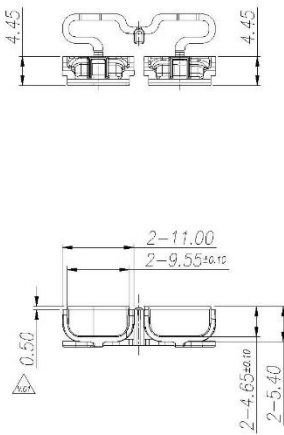
F.F-0101-04(REV.1)

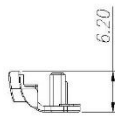
모본 주식회사

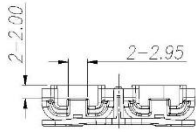
MUTE BUTTON

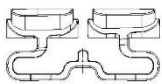
변경 번호 REVISION NO.	시정합성플라스틱 원료 REV. P/NG. ECO NO.	DESCRIPTION	날 짜 DATE
△0.01	ME-2020-000049	Parting 음차 재차 수품 (0.5mm 음차재 수품)	20.11.23











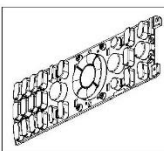
NOTE

- 외관에 BURR 및 돌출 등 유해물 존재여 없음을.
- 부식시험은 다차인 사양에 준함.
- 저시에는 "R"은 최소 R값을 적용함.
- 압도시 손상 후 양산 진행함.
- 가공 외관사항은 설계자의 협의도함.
- 저시역자 다른 공차는 일반공차 ①-A 참고 함.

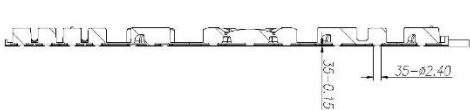
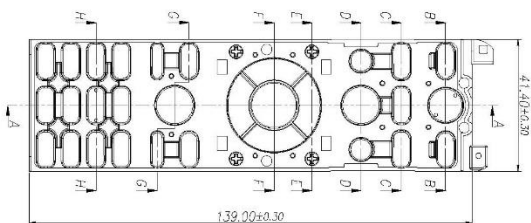
6	DMR13P03B1	Mute Button	1	ABS (Black)	Mold etching (VDI-24) / SIK
번호 NO	품 번 PART_NO.	품 명 PART_NAME	수량 Q'ty	사 양 또는 재 질 SPEC or MATERIAL	후 처 리 FINISHED
① 일반 허용공차 (TOLERANCE) (±MM)	0 ~6 ~30 ~120 ~200 ~315 ~1100	30 ~120 ~200 ~315 ~1100	120 ~200 ~315 ~1100	투상법 PROJECTILE 3RD ANGLE PROJECTION	척 도 SCALE
②	A 0.05 0.1 0.15 0.15 0.2 0.3 0.4	0.15 0.2 0.3 0.4 0.5 0.6 0.8	0.2 0.3 0.4 0.5 0.6 0.7 0.9	③	단 위 UNIT
④	B 0.1 0.2 0.3 0.4 0.5 0.6 0.8	0.2 0.3 0.4 0.5 0.6 0.7 0.9	0.3 0.4 0.5 0.6 0.7 0.9	④	용 기 PAPER SIZE
⑤	C 0.2 0.3 0.4 0.5 0.6 0.7 0.9	0.3 0.4 0.5 0.6 0.7 0.9	0.4 0.5 0.6 0.7 0.9	⑤	날 짜 DATE
				⑥	파일 명 FILE NAME
				⑦	판, 권 REVISION
				⑧	
				⑨	
				⑩	
				⑪	
				⑫	
				⑬	
				⑭	
				⑮	
				⑯	
				⑰	
				⑱	
				⑲	
				⑳	
				㉑	
				㉒	
				㉓	
				㉔	
				㉕	
				㉖	
				㉗	
				㉘	
				㉙	
				㉚	
				㉛	
				㉜	
				㉝	
				㉞	
				㉟	
				㊱	
				㊲	
				㊳	
				㊴	
				㊵	
				㊶	
				㊷	
				㊸	
				㊹	
				㊺	
				㊻	
				㊼	
				㊽	
				㊾	
				㊿	
				㉿	
				㊰	
				㊱	
				㊲	
				㊳	
				㊴	
				㊵	
				㊶	
				㊷	
				㊸	
				㊹	
				㊺	
				㊻	
				㊼	
				㊽	
				㊾	
				㊿	
				㉿	
				㊰	
				㊱</	

KEYPAD

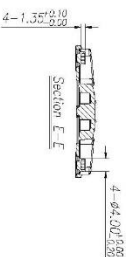
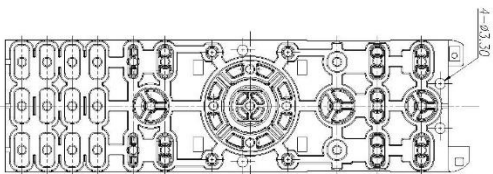
REVISED BY	REV. P/NO. EDO NO.	DESCRIPTION	DATE
—	—	—	—



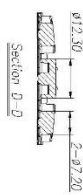
3D VIEW (1:2)



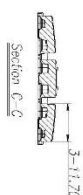
Section A-A



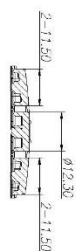
Section E-E



Section D-E



Section C-C



Section G-6



Section H-1

NOTES

1. 字符串 (char) 型数据用单引号括起来, 例: 字符串
2. Boolean 型数据用 `JO Data` 型数据, 例: 是
3. 双精度 `double` 型数据用 `double` 型数据, 例: 12.34
4. 长整型 `long` 型数据用 `long` 型数据, 例: 123456789
5. 浮点型 `float` 型数据用 `float` 型数据, 例: 12.34
6. 字符串 (char) 型数据用单引号括起来, 例: 字符串
7. 字符串 (char) 型数据用单引号括起来, 例: 字符串
8. CODE No
9. B712 : Data18801360
10. Data03 : Data18801360

[illegible]

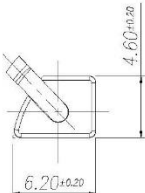
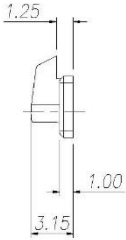
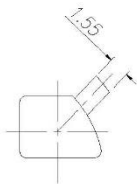
F.F-0101-05(REV.1)

모텔 주식회사

LED lens

변경 번호 REVISION NO.	시정명/공정/소재 번호 REV. P/NO. ECO NO.	변경 내용 DESCRIPTION	날짜 DATE
△ v.0			




NOTE

- 외곽에 BURR 및 돌출 등 유해한 흔적이 없도록.
- 부식사양은 각자면 사양에 준함.
- 각사이는 "R"은 최소 R값을 적용함.
- 반드시 습기 후 당산 전해질.
- 거라 외분사양은 실경과와 함의요함.
- 각사면적 양은 공차는 일반공차 ①-B 참고 함.

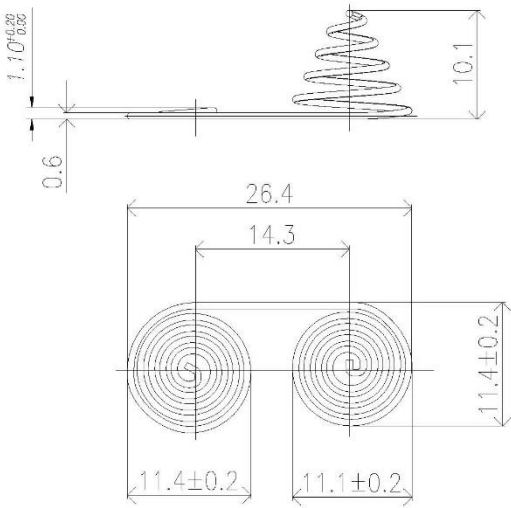
10	DMR12R02MO	LED lens						1	Silicone (milk white)	Mold etching (VDI-24) / Hardness 55					
번호 NO.	품번 PART_NO.	품명 PART_NAME						수량 Q'ty	사양 또는 재료 SPEC or MATERIAL	후처리 FINISHED	비고 REMARK				
일반 허용공차 TOLERANCE (±MM)		0 ~6	6 ~30	30 ~120	120 ~200	200 ~315	315 ~1100	1100 ~	투상법 PROJECTILE	척도 SCALE	단위 UNIT	용지 PAPER_SIZE	날짜 DATE	파일명 FILE_NAME	판 REVISION
①	A	0.05	0.1	0.15	0.15	0.2	0.3	0.4	3RD ANGLE PROJECTION	1/1	mm	A4	2017.12.11		MP
②	B	0.1	0.2	0.3	0.4	0.5	0.6	0.8							
③	C	0.2	0.3	0.4	0.5	0.6	0.7	0.9							
		설계 DESIGN						검토 CHECKED	승인 APPROVED	모델명 MODEL_NAME					
		K.D.H						X	-	BMM-BT08					
										LED lens					
										DMR12R02MO					

MOYON CORPORATION

F.F-0101-04(REV.1)

모본 주식회사

SPRING PLUS-MINUS

변경번호 REVISION NO.		시행변경통보서 번호 REV. P/NO. ECO NO.		변경내용 DESCRIPTION		날짜 DATE		
								
13	DMR11T01B0	spring plus-minus		1	STS304	공용		
번호 NO.	품번 PART_NO.	품명 PART_NAME		수량 Q'ty	사양 또는 재질 SPEC. or MATERIAL	후처리 FINISHED		비고 REMARK
공차 TOLERANCE (±mm)		0 ~6	6 ~30	30 ~120	120 ~200	200 ~315	315 ~1100	1100 ~
	A	0.05	0.1	0.15	0.15	0.2	0.3	0.4
	B	0.1	0.2	0.3	0.4	0.5	0.6	0.8
	C	0.2	0.3	0.4	0.5	0.6	0.7	0.9
도면명 MODEL NAME		BMM-BTC5		도면명 PART NAME		spring plus-minus		
도면번호 PART NO.		DMR11T01B0		설계 DESIGN		검토 CHECKED		승인 APPROVED
				K.D.H				H.S.H

F.F-0101-04(REV.1)

모본 주식회사

SPRING MINUS

변경 번호 REVISION NO. 	사양 변경 등록 번호 REV. P/NO. ECO NO.	변경 내용 DESCRIPTION	날짜 DATE
---------------------------	-----------------------------------	----------------------	------------

Technical drawing showing front and side views of the Spring minus part. Dimensions are in mm.

Front View Dimensions: Overall width 12.10±0.20, Overall height 12.50±0.20, Inner height 10.87, Bottom flange width (6.20), Flange thickness 0.60, Flange height 5.60.

Side View Dimensions: Coil length 10.10, Flange height 2.80±0.20, Flange width 3.75.

12	DMR12M02S0	Spring minus	1	SUS304	Ni plating										
번호 NO.	품번 PART_NO.	품명 PART_NAME	수량 Q'ty	사양 또는 재료 SPEC or MATERIAL	후처리 FINISHED	비고 REMARK									
① 일반 치 용공차 TOLER ANCE (±MM)		0 ~6	5 ~30	30 ~120	120 ~200	200 ~315	315 ~1100	1100 ~	투상법 PROJECTILE	척도 SCALE	단위 UNIT	용지 PAPER_SIZE	날짜 DATE	파일명 FILE_NAME	검 REVISION
	A	0.05	0.1	0.15	0.15	0.2	0.3	0.4	3RD ANGLE PROJECTION	1/1	mm	A4	2017.12.11		MP
	B	0.1	0.2	0.3	0.4	0.5	0.6	0.8		모델명 MODEL_NAME	BMM-BT08				
	C	0.2	0.3	0.4	0.5	0.6	0.7	0.9							

MOOVON CORPORATION

설계
DESIGN
K.D.H

검토
CHECKED
X

승인
APPROVED
-

품명
PART_NAME
Spring minus

품번
PART_NO.
DMR12M02S0

F.F-0101-04(REV.1)

모본 주식회사

SPRING PLUS

변경 번호 REVISION NO.	시공/검정/제조 번호 REV. P/NO. ECO NO.	변경 내용 DESCRIPTION	날짜 DATE
V.D			

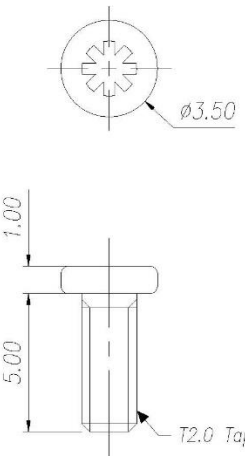
11	DMR12M01S0	Spring plus						1	SUS304			Ni plating			
번호 NO.	품번 PART_NO.	품명 PART_NAME						수량 Q'ty	사양 또는 재료 SPEC or MATERIAL			후처리 FINISHED			비고 REMARK
		0 ~6	5 ~30	30 ~120	120 ~200	200 ~315	315 ~1100	1100 ~	투상법 PROJECTILE	척도 SCALE	단위 UNIT	용지 PAPER SIZE	날짜 DATE	파일명 FILE_NAME	검정 REVISION
일반 허용공차 TOLERANCE (±MM)	A	0.05	0.1	0.15	0.15	0.2	0.3	0.4	3RD ANGLE PROJECTION	1/1	mm	A4	2018.11.02		MP
	B	0.1	0.2	0.3	0.4	0.5	0.6	0.8							
	C	0.2	0.3	0.4	0.5	0.6	0.7	0.9							
		설계 DESIGN		검토 CHECKED		승인 APPROVED		모델명 MODEL NAME							
		K.D.H		X		-		BMM-BT08							
								Spring plus							
								DMR12M01S0							

F.F-0101-04(REV.1)

모본 주식회사

SCREW

변경 번호 REVISION NO.	사양명세서 번호 REV. P/NO. ECO. NO.	변경 내용 DESCRIPTION	날짜 DATE
			



15	DMR12001B0	SCREW	2	T2X6XD3.5(Torx/BLACK)	Heat Treatment	공용								
번 NO.	품 번 PART_NO.	품 명 PART_NAME	수량 Q'ty	사 양 또 는 재 질 SPEC or MATERIAL	후 처 리 FINISHED	비 고 REMARK								
	0 ~6	6 ~30	30 ~120	120 ~200	200 ~315	315 ~1100	1100 ~	투 상 법 PROJECTILE	척 도 SCALE	단 위 UNIT	용 지 PAPER_SIZE	날 짜 DATE	파 일 명 FILE_NAME	회 수 REVISION
①	0.05	0.1	0.15	0.15	0.2	0.3	0.4	3RD-ANGLE PROJECTION	1:1	mm	A4	2017.05.26		MP
B	0.1	0.2	0.3	0.4	0.5	0.6	0.8							
C	0.2	0.3	0.4	0.5	0.6	0.7	0.9							
			DESIGN	CHECKED	승 인 APPROVED	MODEL_NAME								
			K.D.H	X	H.S.H	PART_NAME								
						PART_NO.								
						DMR12001B0								

MIC MESH

변경 번호 REVISION NO.	시범발령증명서 번호 REV. P/NO. ECO NO.	변경 내용 DESCRIPTION	날짜 DATE

NOTE

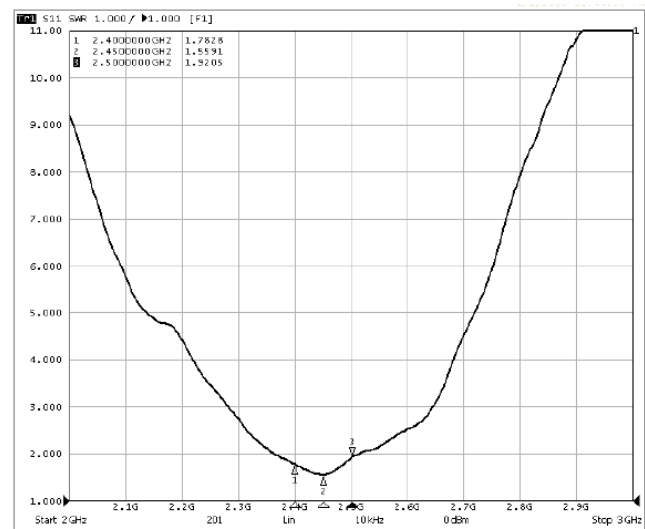
1. 반드시 승인 후 생산 진행할것.
2. 기타 의문사항은 설계자와 협의요망.
3. 지시없는 공차는 일반 허용 공차(A) 적용

6	BMM_BT07_MIC MESH							1	MESH+Adhesive tape													
년 NO.	부 PART_NO.							수량 Q'ty	사 SPEC or MATERIAL				후 FINISHED				비고 REMARK					
	0	6	30	120	200	315	1100	특 PROJECTILE	척 SCALE	단 UNIT	용 PAPER SIZE	날 DATE	과 FILE NAME	변 REVISION								
	~6	~30	~120	~200	~315	~1100	3RD-ANGLE PROJECTION	1/1	mm	A4	2017.04.07											
일반 허용公差 TOLERANCE (±MM)	A	0.05	0.1	0.15	0.15	0.2	0.3	0.4														
	B	0.1	0.2	0.3	0.4	0.5	0.6	0.8														
	C	0.2	0.3	0.4	0.5	0.6	0.7	0.9														
								설 DESIGN	검 CHECKED	승 APPROVED												
								K.D.H	X	H.S.H												
								부 PART_NAME		BMM-BT07 MIC MESH												
								부 PART_NO.														

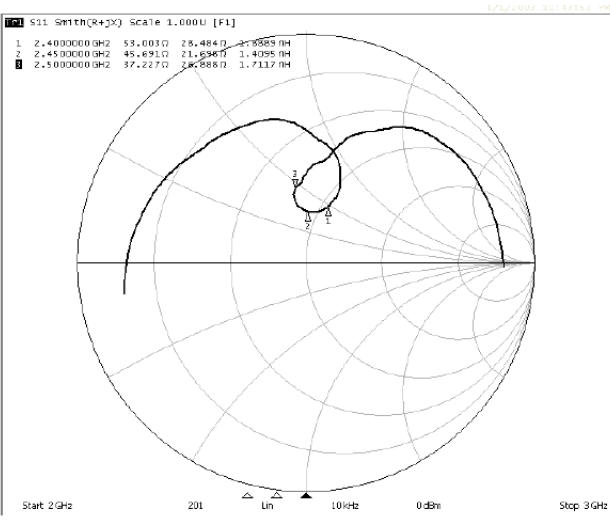
F.F-0101-04(REV.1)

모뎀 주식회사

2.13 ANT Specification



VSWR



SMITH CHART

Passive Gain			
Frequency(Mhz)	2400	2440	2480
Efficiency(dB)	-2.59	-2.08	-2.14
Efficiency(%)	52.03	61.88	61.07
Peak Gain(dB)	3.36	3.95	3.92

Active Gain				
Channel	0	19	39	Average
TRP (dBm)	6.18	6.97	5.72	6.32

4. Reliability Test

4.1 Inspection Item and Result

Test Area	Result	Remarks
Vibration Test	PASS	Added Reports
Strength Test	PASS	
Temp/Humid Cycle test	PASS	
Abrasion Test / Printing	PASS	
Abrasion Test / Keypad	PASS	
Salt mist test	PASS	
Button test	PASS	
Abrasion / Finishing (Mech)	PASS	

5. Certificate

5.1 KC Certificate

5.2 Bluetooth Certificate



Project Details

Project Name	BMMBT11																														
Referenced Qualified Design(s)	107942																														
Listing Date	2020-05-15																														
Declaration ID	D050453																														
Product Listing(s)	<table><thead><tr><th>Name</th><th>Website</th><th>Category</th><th>Publish Date</th><th>Model Number</th><th>Description</th></tr></thead><tbody><tr><td>Bluetooth Remote Controller</td><td>http://www.movon.co.kr</td><td>Input Devices</td><td>5/15/2020 12:00:00 AM</td><td>BMMBT11</td><td>Bluetooth Remote Controller support voice search</td></tr><tr><td>Bluetooth Remote Controller</td><td>http://www.movon.co.kr</td><td>Input Devices</td><td>6/11/2020 12:00:00 AM</td><td>BMMBA02</td><td>Bluetooth Remote Controller support voice search</td></tr><tr><td>Bluetooth Remote Controller</td><td>http://www.movon.co.kr/</td><td>Input Devices</td><td>9/9/2021 12:00:00 AM</td><td>BMMBA03</td><td>Bluetooth Remote Controller support voice search</td></tr><tr><td>Bluetooth Remote Controller</td><td>http://www.movon.co.kr/</td><td>Input Devices</td><td>9/9/2021 12:00:00 AM</td><td>BMMBT12</td><td>Bluetooth Remote Controller support voice search</td></tr></tbody></table>	Name	Website	Category	Publish Date	Model Number	Description	Bluetooth Remote Controller	http://www.movon.co.kr	Input Devices	5/15/2020 12:00:00 AM	BMMBT11	Bluetooth Remote Controller support voice search	Bluetooth Remote Controller	http://www.movon.co.kr	Input Devices	6/11/2020 12:00:00 AM	BMMBA02	Bluetooth Remote Controller support voice search	Bluetooth Remote Controller	http://www.movon.co.kr/	Input Devices	9/9/2021 12:00:00 AM	BMMBA03	Bluetooth Remote Controller support voice search	Bluetooth Remote Controller	http://www.movon.co.kr/	Input Devices	9/9/2021 12:00:00 AM	BMMBT12	Bluetooth Remote Controller support voice search
Name	Website	Category	Publish Date	Model Number	Description																										
Bluetooth Remote Controller	http://www.movon.co.kr	Input Devices	5/15/2020 12:00:00 AM	BMMBT11	Bluetooth Remote Controller support voice search																										
Bluetooth Remote Controller	http://www.movon.co.kr	Input Devices	6/11/2020 12:00:00 AM	BMMBA02	Bluetooth Remote Controller support voice search																										
Bluetooth Remote Controller	http://www.movon.co.kr/	Input Devices	9/9/2021 12:00:00 AM	BMMBA03	Bluetooth Remote Controller support voice search																										
Bluetooth Remote Controller	http://www.movon.co.kr/	Input Devices	9/9/2021 12:00:00 AM	BMMBT12	Bluetooth Remote Controller support voice search																										
Member Company	Mvon Corporation																														
Declaring Member Contact / Listing Contact Person	<table><tr><td>Name</td><td>Yoo Hojin</td></tr><tr><td>Address</td><td>6th Fl. Hyunjuk Bldg. 140-28 Samsung-dong</td></tr><tr><td>City</td><td></td></tr><tr><td>State</td><td></td></tr><tr><td>Country</td><td>South Korea</td></tr><tr><td>Postal Code</td><td></td></tr></table>	Name	Yoo Hojin	Address	6th Fl. Hyunjuk Bldg. 140-28 Samsung-dong	City		State		Country	South Korea	Postal Code																			
Name	Yoo Hojin																														
Address	6th Fl. Hyunjuk Bldg. 140-28 Samsung-dong																														
City																															
State																															
Country	South Korea																														
Postal Code																															

Complete the Project and Submit Product(s) for Qualification

By typing my name or other symbol of my signature into the "Signature" field below, I agree on behalf of Movon Corporation ("Company") to [Bluetooth Launch Studio Terms of Use](#), and I make the following representations and warranties personally and on behalf of Company. The following representations and warranties, together with all project information and the [Bluetooth Launch Studio Terms of Use](#), are the Supplier Declaration of Conformity and Declaration of Compliance described in the [Program Reference Document \(PRD\)](#) and [Declaration Process Document \(DPD\)](#).

- ☒ I am authorized by Company to submit all of the information included in this project and all information is complete and accurate.
- ☒ Company does not, by its governing documents or other applicable law, require more than one signatory, a stamp or seal, or a witnessed signature to be legally bound.
- ☒ I agree on behalf of Company to contract in English and electronically, and adopt the characters and symbols input in the signature field below as my signature, with the same effect as an ink signature.
- ☒ The products included in this project are owned and distributed by Company under a Product name that identifies Company as the source of the Product. Company has the right to use and reference all Qualified Designs referenced in the project, and the products and referenced Qualified Designs comply with the version of the Bluetooth Specification identified in the project submission.
- ☒ The product(s) included in this project and the corresponding Qualified Designs comply with the [Bluetooth Launch Studio Terms of Use](#).