FCC RF EXPOSURE REPORT

FCC ID: 2AVVT-AD00A10057

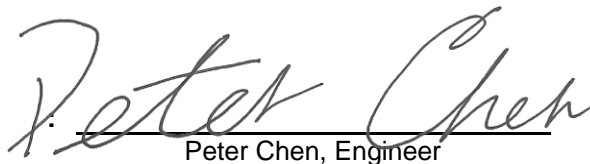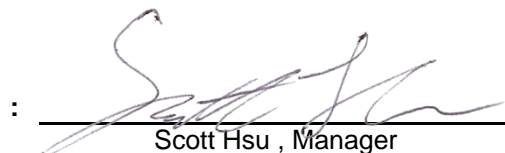|		
Report No.	:	BTL-FCCP-9-2004T194
Equipment	:	Connectivity Control Unit - iTraMS
Model Name	:	AD00A10057, CU-304-0503
Brand Name	:	Bosch
Applicant	:	Robert Bosch Engineering and Business Solutions Private Limited
Address	:	RBEI/Pac, Ban601, Post Box No 3000 Hosur Road, Adugodi Bengaluru 560030 India (Republic Of)
Radio Function	:	Bluetooth EDR/ Bluetooth LE/WLAN 2.4G/RLAN 5G/WCDMA/LTE
FCC Rule Part(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C
Date of Receipt	:	2020/5/13
Date of Test	:	2020/5/13 ~ 2020/7/9
Issued Date	:	2020/7/22

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by :

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Approved by :

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	2020/7/22

1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:
S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Table for Filed Antenna:

For BT/LE/2.4GHz:

Ant.	Brand	Part number	Antenna Type	Connector	Gain (dBi)
CH0	molex®	146153	Dipole (Internal)	Compatible I-PEX MHF I & MMCX-JW	3.0

For 5GHz:

Ant.	Brand	Part number	Antenna Type	Connector	Gain (dBi)
CH0	molex®	146153	Dipole (Internal)	Compatible I-PEX MHF I & MMCX-JW	4.1

For WCDMA:

Brand	S/N	Antenna Type	Connector	Gain (dBi)	Note
BOSCH	N/A	Internal	Integrated (Through Hole)	5.2	Band II
BOSCH	N/A	Internal	Integrated (Through Hole)	0	Band V

For LTE:

Brand	S/N	Antenna Type	Connector	Gain (dBi)	Note
BOSCH	N/A	Internal	Integrated (Through Hole)	5.2	Band 2
BOSCH	N/A	Internal	Integrated (Through Hole)	5.2	Band 4
BOSCH	N/A	Internal	Integrated (Through Hole)	0	Band 5
BOSCH	N/A	Internal	Integrated (Through Hole)	-3.3	Band 12

Band	Max. gain for FCC MPE Limits	Max. gain for Industry Canada MPE Limits	Maximum gain to be compliant with all Limits
WCDMA Band II	12.5	9.1	9.1
WCDMA Band V	10.0	6.7	6.7
LTE Band 2	12.5	9.6	9.6
LTE Band 4	13.0	9.3	9.3
LTE Band 5	10.4	7.1	7.1
LTE Band 12	9.8	6.7	6.7

Output power including tune up tolerance

Function	Target power (dBm)	Tolerance (dB)	Maximum power (dBm)
BT	1	±1	2
BLE	11	±1	12
WLAN 2.4G	17	±1	18
RLAN 5GHz UNII-1	18	±1	19
RLAN 5GHz UNII-2A	18	±1	19
RLAN 5GHz UNII-2C	17	±1	18
RLAN 5GHz UNII-3	14	±1	15
WCDMA	23	±2	25
LTE	22	±2	24

2. TEST RESULTS

For BT:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
3.00	1.9953	2	1.5849	0.00062943	1	Complies

For LE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
3.00	1.9953	12	15.8489	0.00629434	1	Complies

For 2.4GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
3.00	1.9953	18	63.0957	0.02505823	1	Complies

For 5GHz UNII-1:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
4.10	2.5704	19	79.4328	0.04063969	1	Complies

For 5GHz UNII-2A:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
4.10	2.5704	19	79.4328	0.04063969	1	Complies

For 5GHz UNII-2C:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
4.10	2.5704	18	63.0957	0.03228125	1	Complies

For 5GHz UNII-3:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Test Result
4.10	2.5704	15	31.6228	0.01617895	1	Complies

For WWAN:

Mode	Band	Frequency (MHz)	Antenna Gain (dBi)	Max. Output Power (dBm)	Power Density (mW/cm^2)	Limit of Power Density (mW/cm^2)	Test Result
WCDMA	Band II	1907.6	5.2	25	0.2083	1.0000	Complies
WCDMA	Band V	826.4	0	25	0.0629	0.5509	Complies
LTE	Band 2	1860.0	5.2	24	0.1655	1.0000	Complies
LTE	Band 4	1732.5	5.2	24	0.1655	1.0000	Complies
LTE	Band 5	836.5	0	24	0.0500	0.5577	Complies
LTE	Band 12	704.0	-3.3	24	0.0234	0.4693	Complies

For the max simultaneous transmission MPE:

Maximum Bluetooth Power Density (mW/cm2)	Maximum WLAN Power Density (mW/cm2)	Maximum WWAN Power Density (mW/cm2)
0.0063	0.0406	0.2083
Simultaneous transmission of Bluetooth+WWAN		
0.2146<1		
Simultaneous transmission of WIFI+WWAN		
0.2489<1		

Note: The calculated distance is 20 cm.

End of Test Report