

FCC Test Report (BT-LE)

Report No.: RF190912E02A-3

FCC ID: 2AHBN-AP33

Test Model: AP32, AP32E, AP33

Received Date: Sep. 26, 2019

Test Date: Jan. 17 to Feb. 11, 2020

Issued Date: Feb. 19, 2020

Applicant: Mist Systems, Inc.

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95014

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
RF190912E02A-3	Original release.	Feb. 19, 2020

1 Certificate of Conformity

Product: Wi-Fi & BLE Array AP

Brand: Mist

Test Model: AP32, AP32E, AP33

Sample Status: ENGINEERING SAMPLE

Applicant: Mist Systems, Inc.

Test Date: Jan. 17 to Feb. 11, 2020

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Phoenix Huang , **Date:** Feb. 19, 2020
Phoenix Huang / Specialist

Approved by : Clark Lin , **Date:** Feb. 19, 2020
Clark Lin / Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -16.83 dB at 0.42733 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.3 dB at 2483.50 MHz and 2488.10 MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is Ipex and RPSMA Plug not a standard connector.

Note:

Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.8 dB
Conducted emissions	-	3.1 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	5.1 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.2 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (BT-LE)

Product	Wi-Fi & BLE Array AP
Brand	Mist
Test Model	AP32, AP32E, AP33
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	55Vdc from PoE
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 2 Mbps
Operating Frequency	2.402 ~ 2.480GHz
Number of Channel	40
Output Power	2.649 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Brand	Model	Difference
Mist	AP32	for marketing request 1) Internal antenna. 2) BT with omnidirectional antenna.
	AP33	for marketing request 1) Internal antenna. 2) BT with directional antenna.
	AP32E	for marketing request 1) External antenna. 2) BT with omnidirectional antenna.

Note: Output power is same for all three models and only antenna configurations are different.

2. There are WLAN and Bluetooth technology used for the EUT. The EUT has four radios as following table:

Radio 1	Radio 2	Radio 3	Radio 4
WLAN - 2.4GHz	(Scanning Radio) WLAN 2.4GHz + 5GHz	WLAN - 5GHz	Bluetooth

3. Simultaneously transmission condition.

Condition	Technology			
1	WLAN - 2.4GHz	(Scanning Radio) WLAN 2.4GHz + 5GHz	WLAN - 5GHz	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. The EUT power needs to be supplied from a PoE adapter (only for test, not for sale), the information is as below table:

Brand	Model No.	Spec.
PowerDsine	PD-9001GR/AC	Input: 100-240Vac, 50/60Hz, 0.67A Output: 55Vdc, 0.6A

5. The antennas provided to the EUT, please refer to the following table:

Model: AP32						
Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
Int Dual Ant 3 (WiFi 5G+BT)	-	-	5 6	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Int WiFi Dual Ant 1	-	-	4.5 5.4	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Int WiFi Dual Ant 0	-	-	4.6 5.7	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Int WiFi 5G Ant 2	-	-	5.8	5.15~5.85GHz	PIFA	Ipex
Scanning Ant	-	-	5 6	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Model: AP32E						
Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
Ext WiFi Dual Ant (2.4+5G)	AccelTex	ATS-OO-245-46-6RPSP-36	4 6	2.4~2.4835GHz 5.15~5.85GHz	omnidirectional	RPSMA Plug
Ext WiFi Dual Ant (2.4+5G)			4 6	2.4~2.4835GHz 5.15~5.85GHz	omnidirectional	RPSMA Plug
Ext WiFi Dual Ant (5G)			4 6	2.4~2.4835GHz 5.15~5.85GHz	omnidirectional	RPSMA Plug
Ext WiFi Dual Ant (5G)			4 6	2.4~2.4835GHz 5.15~5.85GHz	omnidirectional	RPSMA Plug
Ext WiFi Dual Ant (Scanning)			4 6	2.4~2.4835GHz (Scanning) 5.15~5.85GHz (Scanning)	omnidirectional	RPSMA Plug
Int Scanning Ant	-	-	5 6	2.4~2.4835GHz (Scanning) 5.15~5.85GHz (Scanning)	PIFA	Ipex
Int BT Ant	-	-	5	2.4~2.4835GHz	PIFA	Ipex

Model: AP33						
Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
Int WiFi Dual Ant 0	-	-	3.7 6	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Int WiFi Dual Ant 1	-	-	4.6 6	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
Int WiFi 5G Ant 2	-	-	6	5.15~5.85GHz	PIFA	Ipex
Int WiFi 5G Ant 3	-	-	5.9	5.15~5.85GHz	PIFA	Ipex
Scanning Ant	-	-	5 6	2.4~2.4835GHz 5.15~5.85GHz	PIFA	Ipex
BT Slot_Direct Antenna	-	-	6	2.402~2.480GHz	Slot_Direct	Ipex
BT Array Antenna	-	-	Beam 1 :3.9 Beam 2 :3.9 Beam 3 :4.7 Beam 4 :4.4 Beam 5 :4.8 Beam 6 :5.1 Beam 7 :5.1 Beam 8 :4.2	2.402~2.480GHz	Array Antenna	Ipex

Note: The max. antenna gain was selected for the final test of Antenna Port Conducted test items.

6. The EUT was pre-tested under the following modes:

➤ **For Radiated Emission (Above 1GHz) test**

EUT Model No.: AP32				
Pre-test Mode	Test item	Polarity	Remark	
1	RSE above 1GHz	X-Y	-	
2	RSE above 1GHz	X-Z	-	
3	RSE above 1GHz	Y-Z	Worst-Test Results Mode 1	
EUT Model No.: AP32E				
Pre-test Mode	Test item	Polarity	Remark	
1	RSE above 1GHz	X-Y	-	
2	RSE above 1GHz	X-Z	-	
3	RSE above 1GHz	Y-Z	Worst-Test Results Mode 2	
EUT Model No.: AP33				
Pre-test Mode	Test item	Antenna	Polarity	Remark
1	RSE above 1GHz	Slot_Direct	X-Y	-
2	RSE above 1GHz	Slot_Direct	X-Z	Worst-Test Results Mode 3
3	RSE above 1GHz	Slot_Direct	Y-Z	
4	RSE above 1GHz	Array	X-Y	-
5	RSE above 1GHz	Array	X-Z	Worst-Test Results Mode 4
6	RSE above 1GHz	Array	Y-Z	

➤ **For Radiated Emission (Below 1GHz) test**

Pre-test Mode	Test item	Model No.	Polarity	Remark
1	RSE below 1GHz	AP33 (with Slot_Direct Ant.)	X-Z	Worst-Test Results Mode 3
2	RSE below 1GHz	AP32	X-Z	-
3	RSE below 1GHz	AP33 (with Slot_Direct Ant.)	X-Y	-
4	RSE below 1GHz	AP33 (with Slot_Direct Ant.)	Y-Z	-
5	RSE below 1GHz	AP33 (with Array Ant.)	X-Z	Worst-Test Results Mode 4
6	RSE below 1GHz	AP33 (with Array Ant.)	X-Y	-
7	RSE below 1GHz	AP33 (with Array Ant.)	Y-Z	-
8	RSE below 1GHz	AP32E	X-Y	-
9	RSE below 1GHz	AP32E	X-Z	-
10	RSE below 1GHz	AP32E	Y-Z	Worst-Test Results Mode 2

➤ **For AC Power Conducted Emission test**

Pre-test Mode	Test item	Model No.	Remark
1	AC Power Conducted	AP32	Worst-Test Results Mode 1
2	AC Power Conducted	AP32E	-
3	AC Power Conducted	AP33	-

7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

40 channels are provided to this EUT:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE<1G	PLC	APCM	
1	√	-	√	-	Model: AP32
2	√	√	-	-	Model: AP32E
3	√	√	-	√	Model: AP33 (with Slot_Direct Antenna)
4	√	√	-	-	Model: AP33 (with Array Antenna)

Where **RE \geq 1G**: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

- ☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0, 19, 39	GFSK	1
0 to 39	0, 19, 39	GFSK	2

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

- ☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0	GFSK	2

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

- ☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0	GFSK	2

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0, 19, 39	GFSK	1
0 to 39	0, 19, 39	GFSK	2

Test Condition:

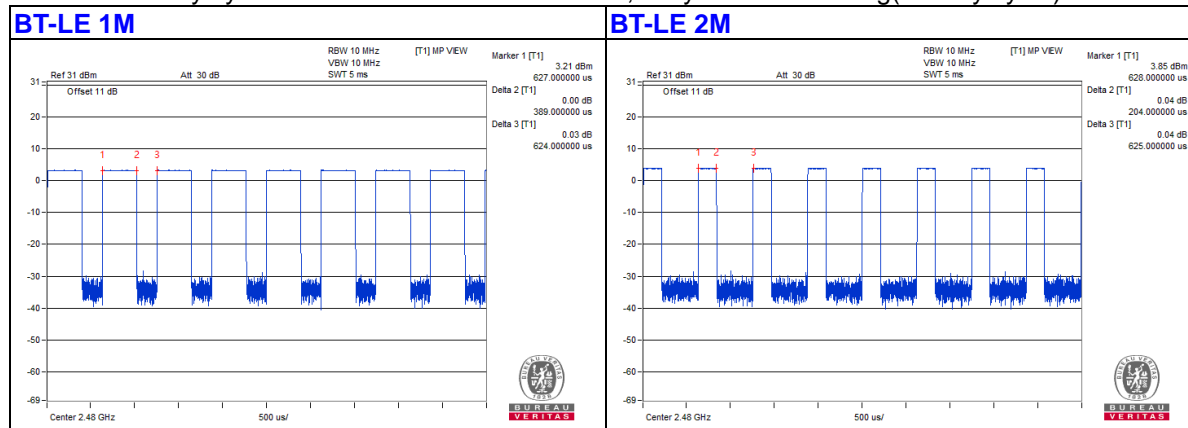
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE \geq 1G	23deg. C, 67%RH	120Vac, 60Hz	Kevin Ko
RE<1G	22deg. C, 68%RH	120Vac, 60Hz	Tom Yang
PLC	25deg. C, 54%RH	120Vac, 60Hz	Kevin Ko
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor shall be considered.

BT-LE 1M: Duty cycle = 0.389 ms/0.624 ms = 0.623, Duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 2.05 \text{ dB}$

BT-LE 2M: Duty cycle = 0.204 ms/0.625 ms = 0.326, Duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 4.86 \text{ dB}$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
C.	PoE Adapter	PowerDsine	PD-9001GR/AC	NA	NA	Supplied by client
D.	Ipod	Apple	MC749TA/A	CC4DN25WDFDM	NA	Provided by Lab

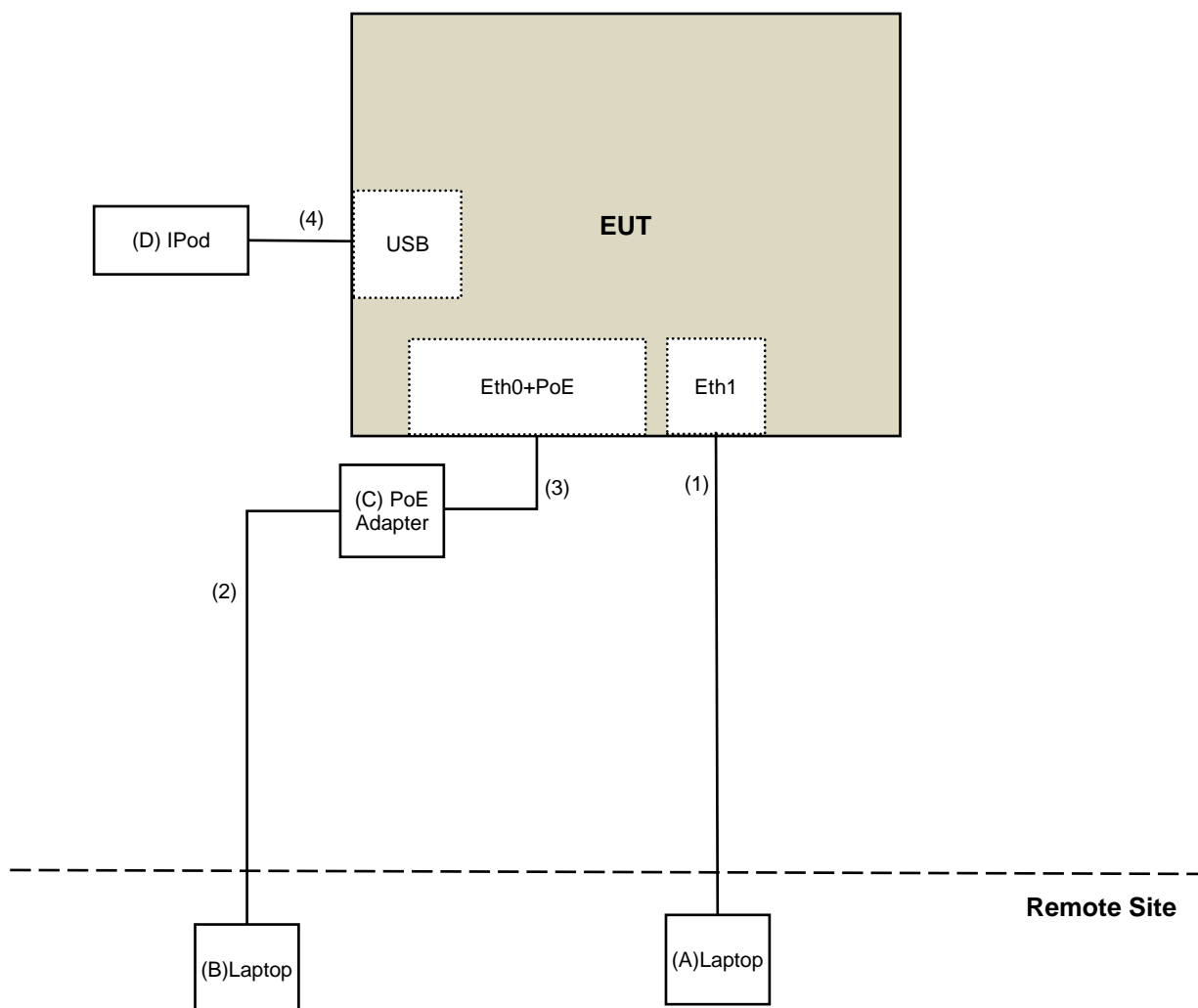
Note:

1. All power cords of the above support units are non-shielded (1.8m).

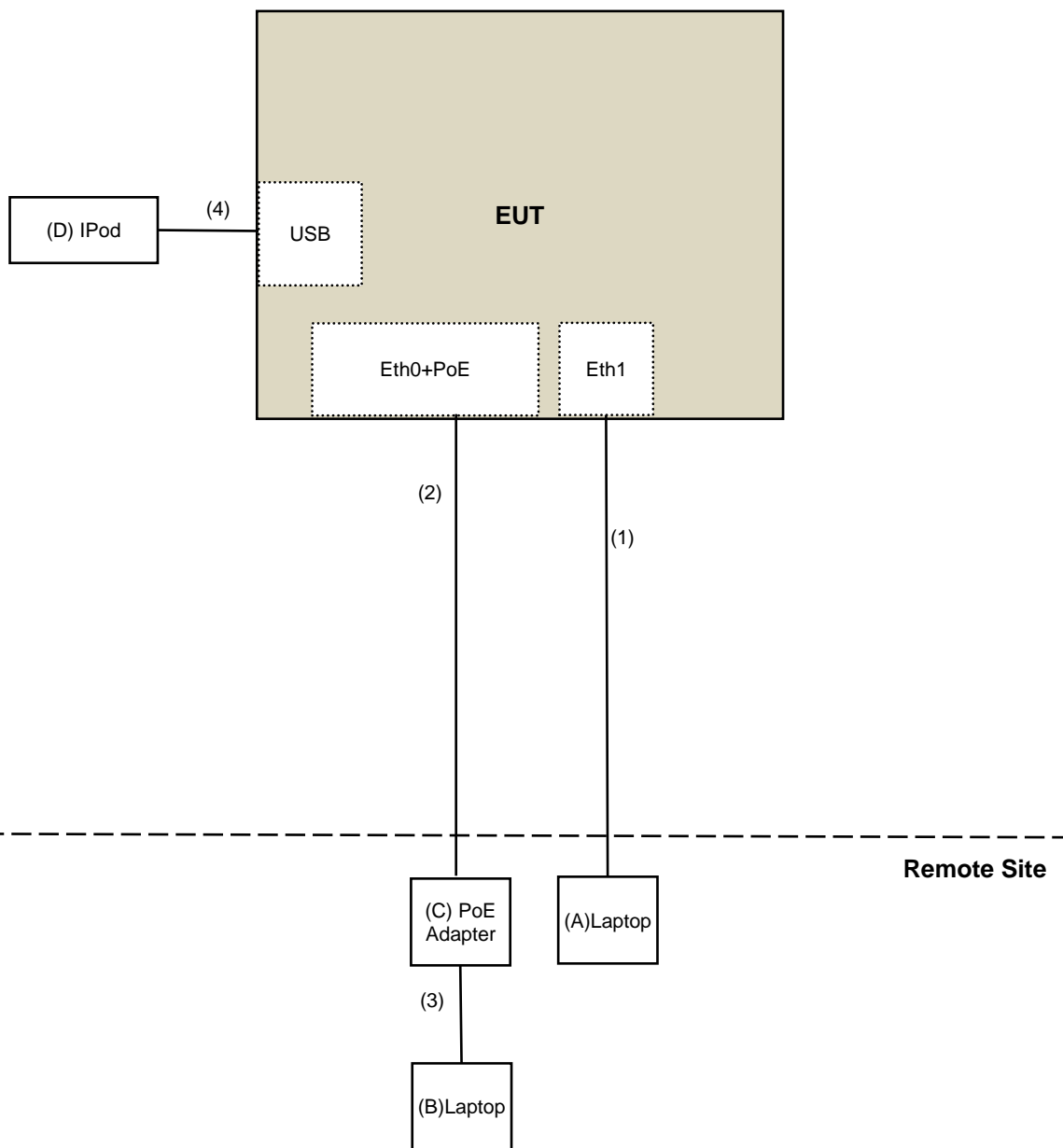
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	1	1.5	No	0	Provided by Lab
4.	USB Cable	1	0.1	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test

For conducted emission test:



For other test items:



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

For Radiated Emission (Below 1GHz):

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 26, 2019	Sep. 25, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Jan. 17, 2020

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1200	160922	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 10, 2019	June 09, 2020
RF Cable	EMC104-SM-SM-6000	180602	June 10, 2019	June 09, 2020
Spectrum Analyzer Keysight	N9030A	MY54490679	July 17, 2019	July 16, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 15, 2020	Jan. 14, 2021
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Spectrum Analyzer Agilent	E4446A	MY48250253	July 24, 2019	July 23, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Jan. 21 to 26, 2020

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

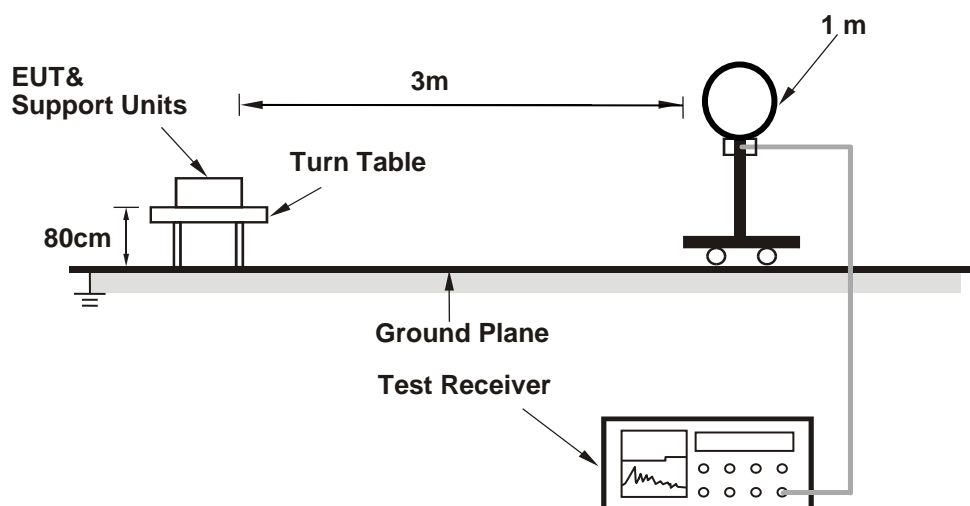
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

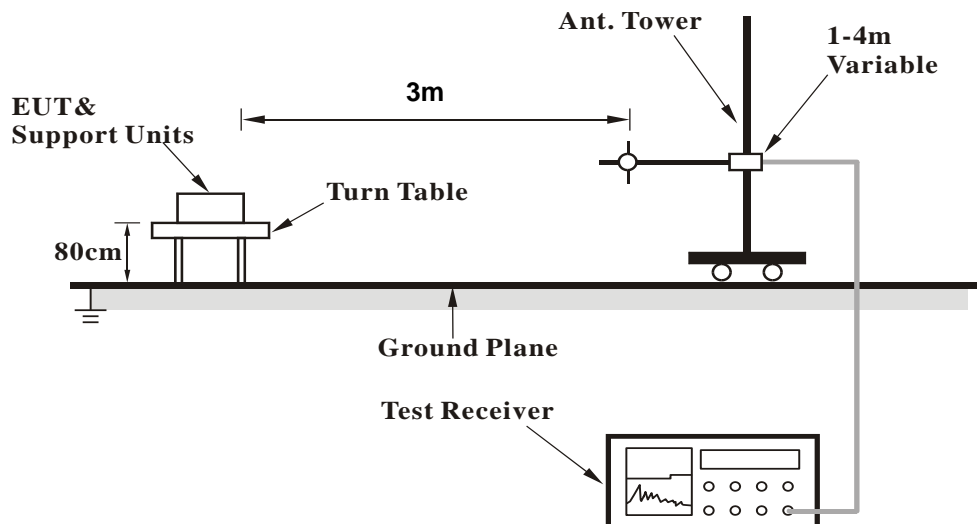
No deviation.

4.1.5 Test Setup

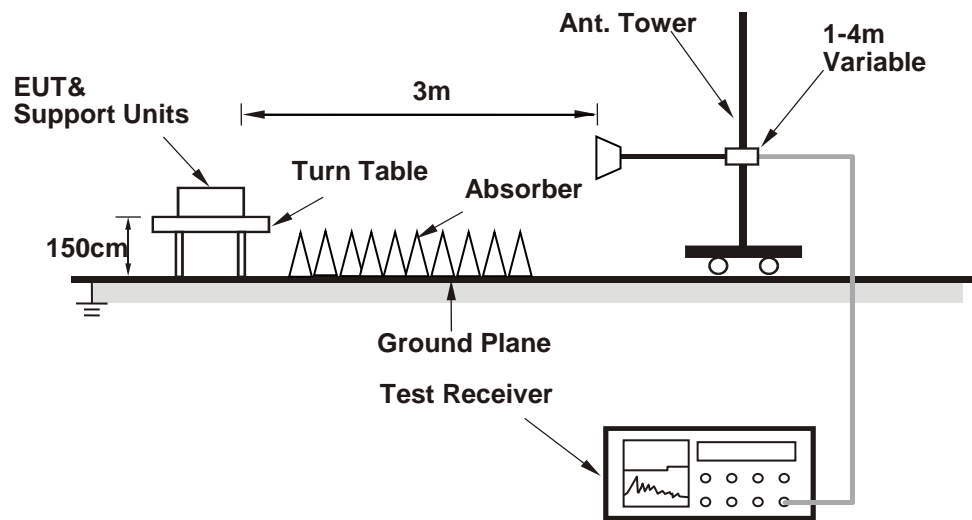
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Connected the EUT with the Laptop which is placed on remote site.
- Controlling software (Hyper terminal paste command) has been activated to set the EUT under transmission condition continuously.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

BT_LE-1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.5 PK	74.0	-18.5	2.34 H	72	57.9	-2.4
2	2390.00	44.6 AV	54.0	-9.4	2.34 H	72	47.0	-2.4
3	*2402.00	100.4 PK			2.34 H	72	102.8	-2.4
4	*2402.00	98.9 AV			2.34 H	72	101.3	-2.4
5	4804.00	42.6 PK	74.0	-31.4	1.96 H	237	40.5	2.1
6	4804.00	34.6 AV	54.0	-19.4	1.96 H	237	32.5	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.9 PK	74.0	-15.1	2.20 V	319	61.3	-2.4
2	2390.00	48.4 AV	54.0	-5.6	2.20 V	319	50.8	-2.4
3	*2402.00	97.8 PK			2.20 V	319	100.2	-2.4
4	*2402.00	95.7 AV			2.20 V	319	98.1	-2.4
5	4804.00	48.6 PK	74.0	-25.4	2.58 V	165	46.5	2.1
6	4804.00	38.8 AV	54.0	-15.2	2.58 V	165	36.7	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	100.5 PK			2.26 H	70	102.9	-2.4
2	*2440.00	98.9 AV			2.26 H	70	101.3	-2.4
3	4880.00	43.4 PK	74.0	-30.6	1.94 H	224	41.3	2.1
4	4880.00	35.2 AV	54.0	-18.8	1.94 H	224	33.1	2.1
5	7320.00	49.6 PK	74.0	-24.4	1.91 H	188	41.5	8.1
6	7320.00	39.6 AV	54.0	-14.4	1.91 H	188	31.5	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	98.3 PK			2.16 V	336	100.7	-2.4
2	*2440.00	96.4 AV			2.16 V	336	98.8	-2.4
3	4880.00	48.9 PK	74.0	-25.1	2.62 V	167	46.8	2.1
4	4880.00	38.9 AV	54.0	-15.1	2.62 V	167	36.8	2.1
5	7320.00	56.5 PK	74.0	-17.5	2.19 V	335	48.4	8.1
6	7320.00	48.2 AV	54.0	-5.8	2.19 V	335	40.1	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	99.9 PK			1.02 H	68	102.4	-2.5
2	*2480.00	98.2 AV			1.02 H	68	100.7	-2.5
3	2483.50	60.6 PK	74.0	-13.4	1.02 H	68	63.1	-2.5
4	2483.50	50.4 AV	54.0	-3.6	1.02 H	68	52.9	-2.5
5	2488.10	57.7 PK	74.0	-16.3	1.02 H	68	60.2	-2.5
6	2488.10	50.3 AV	54.0	-3.7	1.02 H	68	52.8	-2.5
7	4960.00	43.2 PK	74.0	-30.8	1.98 H	240	41.1	2.1
8	4960.00	35.1 AV	54.0	-18.9	1.98 H	240	33.0	2.1
9	7440.00	49.4 PK	74.0	-24.6	1.86 H	180	41.1	8.3
10	7440.00	39.3 AV	54.0	-14.7	1.86 H	180	31.0	8.3
11	#10000.00	48.3 PK	74.0	-25.7	1.50 H	222	36.9	11.4
12	#10000.00	41.5 AV	54.0	-12.5	1.50 H	222	30.1	11.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	97.7 PK			2.17 V	328	100.2	-2.5
2	*2480.00	95.9 AV			2.17 V	328	98.4	-2.5
3	2483.50	58.7 PK	74.0	-15.3	2.17 V	328	61.2	-2.5
4	2483.50	48.2 AV	54.0	-5.8	2.17 V	328	50.7	-2.5
5	2488.10	56.5 PK	74.0	-17.5	2.17 V	328	59.0	-2.5
6	2488.10	48.1 AV	54.0	-5.9	2.17 V	328	50.6	-2.5
7	4960.00	42.8 PK	74.0	-31.2	1.50 V	206	40.7	2.1
8	4960.00	34.2 AV	54.0	-19.8	1.50 V	206	32.1	2.1
9	7440.00	48.4 PK	74.0	-25.6	2.60 V	181	40.1	8.3
10	7440.00	38.4 AV	54.0	-15.6	2.60 V	181	30.1	8.3
11	#10000.00	47.3 PK	74.0	-26.7	1.57 V	220	35.9	11.4
12	#10000.00	40.7 AV	54.0	-13.3	1.57 V	220	29.3	11.4

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.7 PK	74.0	-19.3	2.56 H	56	57.1	-2.4
2	2390.00	46.5 AV	54.0	-7.5	2.56 H	56	48.9	-2.4
3	*2402.00	99.8 PK			2.56 H	56	102.2	-2.4
4	*2402.00	96.6 AV			2.56 H	56	99.0	-2.4
5	4804.00	40.8 PK	74.0	-33.2	1.44 H	144	38.7	2.1
6	4804.00	34.1 AV	54.0	-19.9	1.44 H	144	32.0	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.9 PK	74.0	-18.1	2.15 V	345	58.3	-2.4
2	2390.00	44.3 AV	54.0	-9.7	2.15 V	345	46.7	-2.4
3	*2402.00	96.5 PK			2.11 V	346	98.9	-2.4
4	*2402.00	93.0 AV			2.11 V	346	95.4	-2.4
5	4804.00	44.6 PK	74.0	-29.4	1.04 V	205	42.5	2.1
6	4804.00	38.8 AV	54.0	-15.2	1.04 V	205	36.7	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	100.2 PK			2.78 H	327	102.6	-2.4
2	*2440.00	97.1 AV			2.78 H	327	99.5	-2.4
3	4880.00	41.0 PK	74.0	-33.0	1.41 H	156	38.9	2.1
4	4880.00	34.2 AV	54.0	-19.8	1.41 H	156	32.1	2.1
5	7320.00	48.5 PK	74.0	-25.5	2.50 H	201	40.4	8.1
6	7320.00	39.3 AV	54.0	-14.7	2.50 H	201	31.2	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	97.4 PK			2.20 V	329	99.8	-2.4
2	*2440.00	93.9 AV			2.20 V	329	96.3	-2.4
3	4880.00	43.8 PK	74.0	-30.2	1.00 V	224	41.7	2.1
4	4880.00	38.2 AV	54.0	-15.8	1.00 V	224	36.1	2.1
5	7320.00	48.3 PK	74.0	-25.7	1.51 V	175	40.2	8.1
6	7320.00	38.0 AV	54.0	-16.0	1.51 V	175	29.9	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	100.1 PK			2.67 H	338	102.6	-2.5
2	*2480.00	96.9 AV			2.67 H	338	99.4	-2.5
3	2483.50	59.9 PK	74.0	-14.1	2.67 H	338	62.4	-2.5
4	2483.50	46.0 AV	54.0	-8.0	2.67 H	338	48.5	-2.5
5	4960.00	41.2 PK	74.0	-32.8	1.42 H	163	39.1	2.1
6	4960.00	34.6 AV	54.0	-19.4	1.42 H	163	32.5	2.1
7	7440.00	48.8 PK	74.0	-25.2	2.51 H	203	40.5	8.3
8	7440.00	39.8 AV	54.0	-14.2	2.51 H	203	31.5	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	96.9 PK			2.16 V	333	99.4	-2.5
2	*2480.00	93.4 AV			2.16 V	333	95.9	-2.5
3	2483.50	55.7 PK	74.0	-18.3	2.16 V	333	58.2	-2.5
4	2483.50	44.2 AV	54.0	-9.8	2.16 V	333	46.7	-2.5
5	4960.00	44.3 PK	74.0	-29.7	1.00 V	217	42.2	2.1
6	4960.00	38.6 AV	54.0	-15.4	1.00 V	217	36.5	2.1
7	7440.00	48.3 PK	74.0	-25.7	1.49 V	187	40.0	8.3
8	7440.00	38.1 AV	54.0	-15.9	1.49 V	187	29.8	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

4.1.8 Test Results (Mode 2)

Above 1GHz Data:

BT_LE-1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.50 H	305	58.6	-2.4
2	2390.00	46.3 AV	54.0	-7.7	1.50 H	305	48.7	-2.4
3	*2402.00	102.6 PK			1.50 H	305	105.0	-2.4
4	*2402.00	101.2 AV			1.50 H	305	103.6	-2.4
5	4804.00	41.4 PK	74.0	-32.6	1.09 H	202	39.3	2.1
6	4804.00	32.6 AV	54.0	-21.4	1.09 H	202	30.5	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.5 PK	74.0	-19.5	2.52 V	254	56.9	-2.4
2	2390.00	43.9 AV	54.0	-10.1	2.52 V	254	46.3	-2.4
3	*2402.00	98.6 PK			2.52 V	254	101.0	-2.4
4	*2402.00	97.1 AV			2.52 V	254	99.5	-2.4
5	4804.00	44.5 PK	74.0	-29.5	1.22 V	221	42.4	2.1
6	4804.00	35.8 AV	54.0	-18.2	1.22 V	221	33.7	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.7 PK	74.0	-19.3	1.41 H	306	57.1	-2.4
2	2390.00	44.3 AV	54.0	-9.7	1.41 H	306	46.7	-2.4
3	*2440.00	102.7 PK			1.41 H	306	105.1	-2.4
4	*2440.00	101.3 AV			1.41 H	306	103.7	-2.4
5	2483.50	55.9 PK	74.0	-18.1	1.41 H	306	58.4	-2.5
6	2483.50	44.2 AV	54.0	-9.8	1.41 H	306	46.7	-2.5
7	4880.00	41.1 PK	74.0	-32.9	1.03 H	198	39.0	2.1
8	4880.00	32.1 AV	54.0	-21.9	1.03 H	198	30.0	2.1
9	7320.00	48.7 PK	74.0	-25.3	2.55 H	212	40.6	8.1
10	7320.00	37.7 AV	54.0	-16.3	2.55 H	212	29.6	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.3 PK	74.0	-22.7	2.47 V	257	53.7	-2.4
2	2390.00	40.2 AV	54.0	-13.8	2.47 V	257	42.6	-2.4
3	*2440.00	98.7 PK			2.47 V	257	101.1	-2.4
4	*2440.00	97.3 AV			2.47 V	257	99.7	-2.4
5	2483.50	50.9 PK	74.0	-23.1	2.47 V	257	53.4	-2.5
6	2483.50	40.7 AV	54.0	-13.3	2.47 V	257	43.2	-2.5
7	4880.00	44.7 PK	74.0	-29.3	1.15 V	208	42.6	2.1
8	4880.00	36.5 AV	54.0	-17.5	1.15 V	208	34.4	2.1
9	7320.00	46.8 PK	74.0	-27.2	1.11 V	188	38.7	8.1
10	7320.00	36.7 AV	54.0	-17.3	1.11 V	188	28.6	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	102.1 PK			1.73 H	304	104.6	-2.5
2	*2480.00	100.8 AV			1.73 H	304	103.3	-2.5
3	2483.50	63.8 PK	74.0	-10.2	1.73 H	304	66.3	-2.5
4	2483.50	53.7 AV	54.0	-0.3	1.73 H	304	56.2	-2.5
5	2488.10	61.0 PK	74.0	-13.0	1.73 H	304	63.5	-2.5
6	2488.10	53.7 AV	54.0	-0.3	1.73 H	304	56.2	-2.5
7	4960.00	41.6 PK	74.0	-32.4	1.00 H	187	39.5	2.1
8	4960.00	32.4 AV	54.0	-21.6	1.00 H	187	30.3	2.1
9	7440.00	48.5 PK	74.0	-25.5	2.50 H	224	40.2	8.3
10	7440.00	37.7 AV	54.0	-16.3	2.50 H	224	29.4	8.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	98.4 PK			2.51 V	269	100.9	-2.5
2	*2480.00	96.7 AV			2.51 V	269	99.2	-2.5
3	2483.50	59.8 PK	74.0	-14.2	2.51 V	269	62.3	-2.5
4	2483.50	49.6 AV	54.0	-4.4	2.51 V	269	52.1	-2.5
5	2488.10	57.9 PK	74.0	-16.1	2.51 V	269	60.4	-2.5
6	2488.10	49.5 AV	54.0	-4.5	2.51 V	269	52.0	-2.5
7	4960.00	44.0 PK	74.0	-30.0	1.22 V	216	41.9	2.1
8	4960.00	35.8 AV	54.0	-18.2	1.22 V	216	33.7	2.1
9	7440.00	47.1 PK	74.0	-26.9	1.13 V	192	38.8	8.3
10	7440.00	37.2 AV	54.0	-16.8	1.13 V	192	28.9	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.4 PK	74.0	-18.6	1.76 H	305	57.8	-2.4
2	2390.00	45.0 AV	54.0	-9.0	1.76 H	305	47.4	-2.4
3	*2402.00	100.3 PK			1.76 H	305	102.7	-2.4
4	*2402.00	97.1 AV			1.76 H	305	99.5	-2.4
5	4804.00	40.9 PK	74.0	-33.1	1.01 H	268	38.8	2.1
6	4804.00	34.2 AV	54.0	-19.8	1.01 H	268	32.1	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.0 PK	74.0	-19.0	1.79 V	50	57.4	-2.4
2	2390.00	44.3 AV	54.0	-9.7	1.79 V	50	46.7	-2.4
3	*2402.00	95.5 PK			1.79 V	50	97.9	-2.4
4	*2402.00	91.8 AV			1.79 V	50	94.2	-2.4
5	4804.00	42.9 PK	74.0	-31.1	1.08 V	215	40.8	2.1
6	4804.00	36.6 AV	54.0	-17.4	1.08 V	215	34.5	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.66 H	303	58.6	-2.4
2	2390.00	47.6 AV	54.0	-6.4	1.66 H	303	50.0	-2.4
3	*2440.00	100.4 PK			1.66 H	303	102.8	-2.4
4	*2440.00	97.1 AV			1.66 H	303	99.5	-2.4
5	2483.50	56.0 PK	74.0	-18.0	1.66 H	303	58.5	-2.5
6	2483.50	44.5 AV	54.0	-9.5	1.66 H	303	47.0	-2.5
7	4880.00	41.3 PK	74.0	-32.7	1.10 H	281	39.2	2.1
8	4880.00	34.6 AV	54.0	-19.4	1.10 H	281	32.5	2.1
9	7320.00	46.2 PK	74.0	-27.8	1.87 H	165	38.1	8.1
10	7320.00	36.0 AV	54.0	-18.0	1.87 H	165	27.9	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.3 PK	74.0	-17.7	1.79 V	34	58.7	-2.4
2	2390.00	45.7 AV	54.0	-8.3	1.79 V	34	48.1	-2.4
3	*2440.00	95.7 PK			1.79 V	34	98.1	-2.4
4	*2440.00	92.4 AV			1.79 V	34	94.8	-2.4
5	2483.50	55.4 PK	74.0	-18.6	1.79 V	34	57.9	-2.5
6	2483.50	43.7 AV	54.0	-10.3	1.79 V	34	46.2	-2.5
7	4880.00	42.9 PK	74.0	-31.1	1.04 V	230	40.8	2.1
8	4880.00	36.9 AV	54.0	-17.1	1.04 V	230	34.8	2.1
9	7320.00	47.8 PK	74.0	-26.2	1.10 V	178	39.7	8.1
10	7320.00	38.4 AV	54.0	-15.6	1.10 V	178	30.3	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	100.3 PK			1.90 H	25	102.8	-2.5
2	*2480.00	97.0 AV			1.90 H	25	99.5	-2.5
3	2483.50	58.3 PK	74.0	-15.7	1.90 H	25	60.8	-2.5
4	2483.50	45.3 AV	54.0	-8.7	1.90 H	25	47.8	-2.5
5	4960.00	41.5 PK	74.0	-32.5	1.00 H	256	39.4	2.1
6	4960.00	34.7 AV	54.0	-19.3	1.00 H	256	32.6	2.1
7	7440.00	46.9 PK	74.0	-27.1	1.93 H	178	38.6	8.3
8	7440.00	36.5 AV	54.0	-17.5	1.93 H	178	28.2	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	95.6 PK			1.83 V	28	98.1	-2.5
2	*2480.00	92.2 AV			1.83 V	28	94.7	-2.5
3	2483.50	55.2 PK	74.0	-18.8	1.83 V	28	57.7	-2.5
4	2483.50	44.5 AV	54.0	-9.5	1.83 V	28	47.0	-2.5
5	4960.00	42.7 PK	74.0	-31.3	1.02 V	214	40.6	2.1
6	4960.00	36.9 AV	54.0	-17.1	1.02 V	214	34.8	2.1
7	7440.00	47.7 PK	74.0	-26.3	1.11 V	194	39.4	8.3
8	7440.00	38.3 AV	54.0	-15.7	1.11 V	194	30.0	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

Below 1GHz Data:

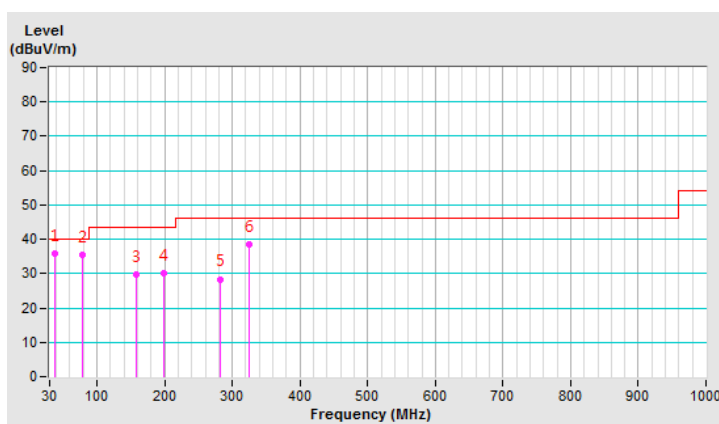
BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.84	35.7 QP	40.0	-4.3	1.00 H	97	44.2	-8.5
2	79.40	35.4 QP	40.0	-4.6	2.00 H	114	47.9	-12.5
3	157.83	29.6 QP	43.5	-13.9	2.00 H	76	36.7	-7.1
4	198.93	30.2 QP	43.5	-13.3	1.50 H	134	40.6	-10.4
5	282.30	28.4 QP	46.0	-17.6	1.00 H	47	35.3	-6.9
6	324.12	38.4 QP	46.0	-7.6	1.50 H	66	43.9	-5.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

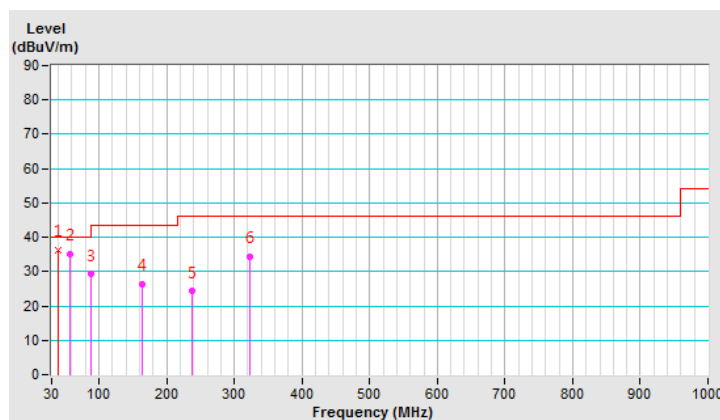


CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.19	36.4 QP	40.0	-3.6	1.07 V	199	44.7	-8.3
2	57.34	35.3 QP	40.0	-4.7	1.50 V	103	43.7	-8.4
3	88.98	29.2 QP	43.5	-14.3	1.50 V	152	42.6	-13.4
4	163.75	26.5 QP	43.5	-17.0	2.00 V	292	33.9	-7.4
5	236.99	24.5 QP	46.0	-21.5	1.50 V	10	33.2	-8.7
6	322.04	34.5 QP	46.0	-11.5	2.00 V	73	40.0	-5.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.9 Test Results (Mode 3)

Above 1GHz Data:

BT_LE-1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.6 PK	74.0	-18.4	1.88 H	62	58.0	-2.4
2	2390.00	44.5 AV	54.0	-9.5	1.88 H	62	46.9	-2.4
3	*2402.00	99.3 PK			1.88 H	62	101.7	-2.4
4	*2402.00	97.5 AV			1.88 H	62	99.9	-2.4
5	4804.00	44.5 PK	74.0	-29.5	2.17 H	206	42.4	2.1
6	4804.00	37.4 AV	54.0	-16.6	2.17 H	206	35.3	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.5 PK	74.0	-19.5	3.81 V	14	56.9	-2.4
2	2390.00	43.0 AV	54.0	-11.0	3.81 V	14	45.4	-2.4
3	*2402.00	96.9 PK			3.81 V	14	99.3	-2.4
4	*2402.00	95.5 AV			3.81 V	14	97.9	-2.4
5	4804.00	42.7 PK	74.0	-31.3	2.16 V	174	40.6	2.1
6	4804.00	33.3 AV	54.0	-20.7	2.16 V	174	31.2	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.4 PK	74.0	-19.6	2.07 H	50	56.8	-2.4
2	2390.00	43.6 AV	54.0	-10.4	2.07 H	50	46.0	-2.4
3	*2440.00	99.3 PK			2.07 H	50	101.7	-2.4
4	*2440.00	97.8 AV			2.07 H	50	100.2	-2.4
5	2483.50	55.5 PK	74.0	-18.5	2.07 H	50	58.0	-2.5
6	2483.50	43.5 AV	54.0	-10.5	2.07 H	50	46.0	-2.5
7	4880.00	44.4 PK	74.0	-29.6	2.14 H	195	42.3	2.1
8	4880.00	37.1 AV	54.0	-16.9	2.14 H	195	35.0	2.1
9	7320.00	49.8 PK	74.0	-24.2	1.07 H	126	41.7	8.1
10	7320.00	40.4 AV	54.0	-13.6	1.07 H	126	32.3	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.3 PK	74.0	-19.7	3.78 V	4	56.7	-2.4
2	2390.00	42.7 AV	54.0	-11.3	3.78 V	4	45.1	-2.4
3	*2440.00	97.4 PK			3.78 V	4	99.8	-2.4
4	*2440.00	96.0 AV			3.78 V	4	98.4	-2.4
5	2483.50	54.6 PK	74.0	-19.4	3.78 V	4	57.1	-2.5
6	2483.50	42.8 AV	54.0	-11.2	3.78 V	4	45.3	-2.5
7	4880.00	42.1 PK	74.0	-31.9	2.16 V	164	40.0	2.1
8	4880.00	33.5 AV	54.0	-20.5	2.16 V	164	31.4	2.1
9	7320.00	47.3 PK	74.0	-26.7	2.12 V	157	39.2	8.1
10	7320.00	37.6 AV	54.0	-16.4	2.12 V	157	29.5	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	98.5 PK			3.00 H	31	101.0	-2.5
2	*2480.00	96.8 AV			3.00 H	31	99.3	-2.5
3	2483.50	57.6 PK	74.0	-16.4	3.00 H	31	60.1	-2.5
4	2483.50	50.2 AV	54.0	-3.8	3.00 H	31	52.7	-2.5
5	2488.10	57.8 PK	74.0	-16.2	3.00 H	31	60.3	-2.5
6	2488.10	50.1 AV	54.0	-3.9	3.00 H	31	52.6	-2.5
7	4960.00	44.3 PK	74.0	-29.7	2.11 H	210	42.2	2.1
8	4960.00	37.1 AV	54.0	-16.9	2.11 H	210	35.0	2.1
9	7440.00	50.3 PK	74.0	-23.7	1.00 H	141	42.0	8.3
10	7440.00	40.9 AV	54.0	-13.1	1.00 H	141	32.6	8.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	97.0 PK			3.75 V	7	99.5	-2.5
2	*2480.00	95.0 AV			3.75 V	7	97.5	-2.5
3	2483.50	56.5 PK	74.0	-17.5	3.75 V	7	59.0	-2.5
4	2483.50	49.0 AV	54.0	-5.0	3.75 V	7	51.5	-2.5
5	2488.10	57.2 PK	74.0	-16.8	3.75 V	7	59.7	-2.5
6	2488.10	48.4 AV	54.0	-5.6	3.75 V	7	50.9	-2.5
7	4960.00	42.3 PK	74.0	-31.7	2.11 V	163	40.2	2.1
8	4960.00	33.8 AV	54.0	-20.2	2.11 V	163	31.7	2.1
9	7440.00	47.7 PK	74.0	-26.3	2.15 V	156	39.4	8.3
10	7440.00	37.7 AV	54.0	-16.3	2.15 V	156	29.4	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.7 PK	74.0	-19.3	1.52 H	59	57.1	-2.4
2	2390.00	43.3 AV	54.0	-10.7	1.52 H	59	45.7	-2.4
3	*2402.00	96.5 PK			1.52 H	59	98.9	-2.4
4	*2402.00	93.1 AV			1.52 H	59	95.5	-2.4
5	4804.00	42.7 PK	74.0	-31.3	2.03 H	197	40.6	2.1
6	4804.00	36.2 AV	54.0	-17.8	2.03 H	197	34.1	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.2 PK	74.0	-18.8	3.29 V	20	57.6	-2.4
2	2390.00	42.9 AV	54.0	-11.1	3.29 V	20	45.3	-2.4
3	*2402.00	96.3 PK			3.29 V	20	98.7	-2.4
4	*2402.00	92.9 AV			3.29 V	20	95.3	-2.4
5	4804.00	42.1 PK	74.0	-31.9	2.09 V	159	40.0	2.1
6	4804.00	35.2 AV	54.0	-18.8	2.09 V	159	33.1	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.9 PK	74.0	-19.1	1.77 H	47	57.3	-2.4
2	2390.00	42.5 AV	54.0	-11.5	1.77 H	47	44.9	-2.4
3	*2440.00	96.6 PK			1.77 H	47	99.0	-2.4
4	*2440.00	93.3 AV			1.77 H	47	95.7	-2.4
5	2483.50	55.1 PK	74.0	-18.9	1.77 H	47	57.6	-2.5
6	2483.50	43.6 AV	54.0	-10.4	1.77 H	47	46.1	-2.5
7	4880.00	41.8 PK	74.0	-32.2	2.02 H	213	39.7	2.1
8	4880.00	36.1 AV	54.0	-17.9	2.02 H	213	34.0	2.1
9	7320.00	47.9 PK	74.0	-26.1	1.49 H	193	39.8	8.1
10	7320.00	38.7 AV	54.0	-15.3	1.49 H	193	30.6	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.3 PK	74.0	-19.7	3.34 V	15	56.7	-2.4
2	2390.00	42.0 AV	54.0	-12.0	3.34 V	15	44.4	-2.4
3	*2440.00	96.3 PK			3.34 V	15	98.7	-2.4
4	*2440.00	93.2 AV			3.34 V	15	95.6	-2.4
5	2483.50	54.8 PK	74.0	-19.2	3.34 V	15	57.3	-2.5
6	2483.50	42.8 AV	54.0	-11.2	3.34 V	15	45.3	-2.5
7	4880.00	42.0 PK	74.0	-32.0	2.05 V	160	39.9	2.1
8	4880.00	35.1 AV	54.0	-18.9	2.05 V	160	33.0	2.1
9	7320.00	46.3 PK	74.0	-27.7	3.30 V	54	38.2	8.1
10	7320.00	36.3 AV	54.0	-17.7	3.30 V	54	28.2	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	95.8 PK			2.71 H	34	98.3	-2.5
2	*2480.00	92.5 AV			2.71 H	34	95.0	-2.5
3	2483.50	54.6 PK	74.0	-19.4	2.71 H	34	57.1	-2.5
4	2483.50	43.3 AV	54.0	-10.7	2.71 H	34	45.8	-2.5
5	4960.00	41.7 PK	74.0	-32.3	2.01 H	212	39.6	2.1
6	4960.00	35.8 AV	54.0	-18.2	2.01 H	212	33.7	2.1
7	7440.00	47.5 PK	74.0	-26.5	1.43 H	178	39.2	8.3
8	7440.00	38.5 AV	54.0	-15.5	1.43 H	178	30.2	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	96.0 PK			3.29 V	17	98.5	-2.5
2	*2480.00	92.4 AV			3.29 V	17	94.9	-2.5
3	2483.50	55.1 PK	74.0	-18.9	3.29 V	17	57.6	-2.5
4	2483.50	42.9 AV	54.0	-11.1	3.29 V	17	45.4	-2.5
5	4960.00	42.0 PK	74.0	-32.0	2.06 V	150	39.9	2.1
6	4960.00	35.2 AV	54.0	-18.8	2.06 V	150	33.1	2.1
7	7440.00	46.8 PK	74.0	-27.2	3.33 V	50	38.5	8.3
8	7440.00	36.5 AV	54.0	-17.5	3.33 V	50	28.2	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

Below 1GHz Data:

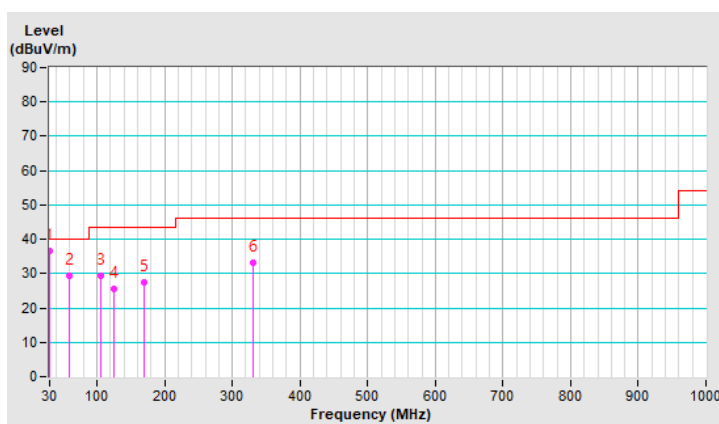
BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.27	36.5 QP	40.0	-3.5	1.47 H	83	45.2	-8.7
2	59.21	29.4 QP	40.0	-10.6	1.40 H	84	37.7	-8.3
3	106.25	29.2 QP	43.5	-14.3	1.40 H	167	40.1	-10.9
4	125.68	25.5 QP	43.5	-18.0	2.20 H	8	34.3	-8.8
5	170.57	27.4 QP	43.5	-16.1	1.40 H	138	35.0	-7.6
6	331.18	33.0 QP	46.0	-13.0	1.20 H	56	38.3	-5.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

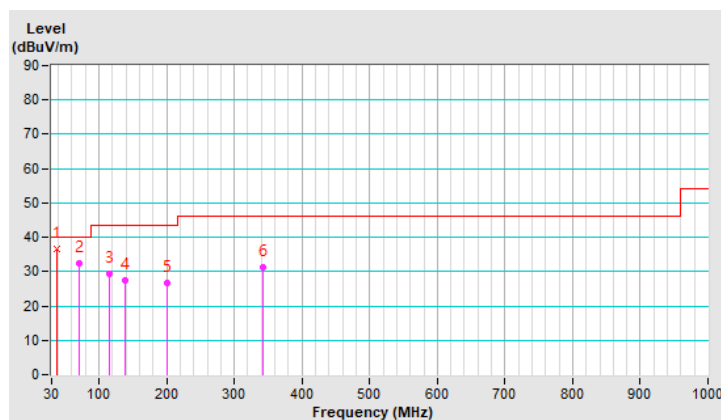


CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.77	36.6 QP	40.0	-3.4	1.10 V	120	44.9	-8.3
2	70.45	32.5 QP	40.0	-7.5	1.20 V	103	42.7	-10.2
3	115.63	29.4 QP	43.5	-14.1	2.98 V	217	39.2	-9.8
4	138.29	27.4 QP	43.5	-16.1	1.47 V	25	35.0	-7.6
5	199.79	26.6 QP	43.5	-16.9	1.30 V	3	37.0	-10.4
6	342.81	31.2 QP	46.0	-14.8	1.40 V	7	36.4	-5.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.1.10 Test Results (Mode 4)

Above 1GHz Data:

BT_LE-1M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	2.00 H	308	58.6	-2.4
2	2390.00	45.1 AV	54.0	-8.9	2.00 H	308	47.5	-2.4
3	*2402.00	100.7 PK			2.00 H	308	103.1	-2.4
4	*2402.00	99.5 AV			2.00 H	308	101.9	-2.4
5	4804.00	49.4 PK	74.0	-24.6	1.04 H	156	47.3	2.1
6	4804.00	40.3 AV	54.0	-13.7	1.04 H	156	38.2	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	46.8 PK	74.0	-27.2	3.74 V	20	49.2	-2.4
2	2390.00	36.6 AV	54.0	-17.4	3.74 V	20	39.0	-2.4
3	*2402.00	91.6 PK			3.74 V	20	94.0	-2.4
4	*2402.00	88.7 AV			3.74 V	20	91.1	-2.4
5	4804.00	43.7 PK	74.0	-30.3	2.13 V	259	41.6	2.1
6	4804.00	36.2 AV	54.0	-17.8	2.13 V	259	34.1	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.8 PK	74.0	-19.2	2.08 H	298	57.2	-2.4
2	2390.00	44.7 AV	54.0	-9.3	2.08 H	298	47.1	-2.4
3	*2440.00	101.0 PK			2.08 H	298	103.4	-2.4
4	*2440.00	99.8 AV			2.08 H	298	102.2	-2.4
5	2483.50	56.3 PK	74.0	-17.7	2.08 H	298	58.8	-2.5
6	2483.50	44.3 AV	54.0	-9.7	2.08 H	298	46.8	-2.5
7	4880.00	42.5 PK	74.0	-31.5	1.08 H	152	40.4	2.1
8	4880.00	34.9 AV	54.0	-19.1	1.08 H	152	32.8	2.1
9	7320.00	48.8 PK	74.0	-25.2	1.04 H	144	40.7	8.1
10	7320.00	40.0 AV	54.0	-14.0	1.04 H	144	31.9	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	44.6 PK	74.0	-29.4	3.67 V	13	47.0	-2.4
2	2390.00	33.7 AV	54.0	-20.3	3.67 V	13	36.1	-2.4
3	*2440.00	92.3 PK			3.67 V	13	94.7	-2.4
4	*2440.00	89.5 AV			3.67 V	13	91.9	-2.4
5	2483.50	45.8 PK	74.0	-28.2	3.67 V	13	48.3	-2.5
6	2483.50	34.1 AV	54.0	-19.9	3.67 V	13	36.6	-2.5
7	4880.00	44.1 PK	74.0	-29.9	2.11 V	248	42.0	2.1
8	4880.00	36.5 AV	54.0	-17.5	2.11 V	248	34.4	2.1
9	7320.00	46.9 PK	74.0	-27.1	1.56 V	190	38.8	8.1
10	7320.00	36.0 AV	54.0	-18.0	1.56 V	190	27.9	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	100.8 PK			2.18 H	293	103.3	-2.5
2	*2480.00	99.3 AV			2.18 H	293	101.8	-2.5
3	2483.50	58.5 PK	74.0	-15.5	2.18 H	293	61.0	-2.5
4	2483.50	52.7 AV	54.0	-1.3	2.18 H	293	55.2	-2.5
5	2488.10	58.5 PK	74.0	-15.5	2.18 H	293	61.0	-2.5
6	2488.10	52.5 AV	54.0	-1.5	2.18 H	293	55.0	-2.5
7	4960.00	43.1 PK	74.0	-30.9	1.02 H	164	41.0	2.1
8	4960.00	35.2 AV	54.0	-18.8	1.02 H	164	33.1	2.1
9	7440.00	48.8 PK	74.0	-25.2	1.00 H	140	40.5	8.3
10	7440.00	39.8 AV	54.0	-14.2	1.00 H	140	31.5	8.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	91.1 PK			3.72 V	14	93.6	-2.5
2	*2480.00	88.5 AV			3.72 V	14	91.0	-2.5
3	2483.50	54.3 PK	74.0	-19.7	3.72 V	14	56.8	-2.5
4	2483.50	44.5 AV	54.0	-9.5	3.72 V	14	47.0	-2.5
5	2488.10	54.8 PK	74.0	-19.2	3.72 V	14	57.3	-2.5
6	2488.10	44.4 AV	54.0	-9.6	3.72 V	14	46.9	-2.5
7	4960.00	44.4 PK	74.0	-29.6	2.11 V	245	42.3	2.1
8	4960.00	36.6 AV	54.0	-17.4	2.11 V	245	34.5	2.1
9	7440.00	46.3 PK	74.0	-27.7	1.50 V	191	38.0	8.3
10	7440.00	35.7 AV	54.0	-18.3	1.50 V	191	27.4	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.6 PK	74.0	-20.4	1.27 H	58	56.0	-2.4
2	2390.00	42.8 AV	54.0	-11.2	1.27 H	58	45.2	-2.4
3	*2402.00	93.5 PK			1.27 H	58	95.9	-2.4
4	*2402.00	89.2 AV			1.27 H	58	91.6	-2.4
5	4804.00	41.9 PK	74.0	-32.1	1.08 H	134	39.8	2.1
6	4804.00	35.8 AV	54.0	-18.2	1.08 H	134	33.7	2.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.0 PK	74.0	-20.0	1.07 V	231	56.4	-2.4
2	2390.00	42.1 AV	54.0	-11.9	1.07 V	231	44.5	-2.4
3	*2402.00	90.2 PK			1.07 V	231	92.6	-2.4
4	*2402.00	86.1 AV			1.07 V	231	88.5	-2.4
5	4804.00	41.5 PK	74.0	-32.5	1.86 V	245	39.4	2.1
6	4804.00	35.1 AV	54.0	-18.9	1.86 V	245	33.0	2.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.8 PK	74.0	-20.2	1.44 H	61	56.2	-2.4
2	2390.00	43.1 AV	54.0	-10.9	1.44 H	61	45.5	-2.4
3	*2440.00	92.3 PK			1.44 H	61	94.7	-2.4
4	*2440.00	88.5 AV			1.44 H	61	90.9	-2.4
5	2483.50	54.0 PK	74.0	-20.0	1.44 H	61	56.5	-2.5
6	2483.50	43.2 AV	54.0	-10.8	1.44 H	61	45.7	-2.5
7	4880.00	42.0 PK	74.0	-32.0	1.06 H	144	39.9	2.1
8	4880.00	36.0 AV	54.0	-18.0	1.06 H	144	33.9	2.1
9	7320.00	47.4 PK	74.0	-26.6	1.24 H	158	39.3	8.1
10	7320.00	38.3 AV	54.0	-15.7	1.24 H	158	30.2	8.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.2 PK	74.0	-19.8	1.03 V	239	56.6	-2.4
2	2390.00	42.4 AV	54.0	-11.6	1.03 V	239	44.8	-2.4
3	*2440.00	89.5 PK			1.03 V	239	91.9	-2.4
4	*2440.00	85.4 AV			1.03 V	239	87.8	-2.4
5	2483.50	53.9 PK	74.0	-20.1	1.03 V	239	56.4	-2.5
6	2483.50	42.8 AV	54.0	-11.2	1.03 V	239	45.3	-2.5
7	4880.00	42.1 PK	74.0	-31.9	1.90 V	232	40.0	2.1
8	4880.00	35.5 AV	54.0	-18.5	1.90 V	232	33.4	2.1
9	7320.00	46.5 PK	74.0	-27.5	1.44 V	206	38.4	8.1
10	7320.00	36.1 AV	54.0	-17.9	1.44 V	206	28.0	8.1

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	93.2 PK			1.00 H	59	95.7	-2.5
2	*2480.00	89.2 AV			1.00 H	59	91.7	-2.5
3	2483.50	53.9 PK	74.0	-20.1	1.00 H	59	56.4	-2.5
4	2483.50	43.2 AV	54.0	-10.8	1.00 H	59	45.7	-2.5
5	4960.00	41.7 PK	74.0	-32.3	1.10 H	151	39.6	2.1
6	4960.00	35.8 AV	54.0	-18.2	1.10 H	151	33.7	2.1
7	7440.00	47.5 PK	74.0	-26.5	1.24 H	149	39.2	8.3
8	7440.00	38.5 AV	54.0	-15.5	1.24 H	149	30.2	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	90.1 PK			1.02 V	241	92.6	-2.5
2	*2480.00	86.0 AV			1.02 V	241	88.5	-2.5
3	2483.50	53.5 PK	74.0	-20.5	1.02 V	241	56.0	-2.5
4	2483.50	42.7 AV	54.0	-11.3	1.02 V	241	45.2	-2.5
5	4960.00	41.9 PK	74.0	-32.1	1.88 V	234	39.8	2.1
6	4960.00	35.3 AV	54.0	-18.7	1.88 V	234	33.2	2.1
7	7440.00	46.9 PK	74.0	-27.1	1.46 V	217	38.6	8.3
8	7440.00	36.4 AV	54.0	-17.6	1.46 V	217	28.1	8.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

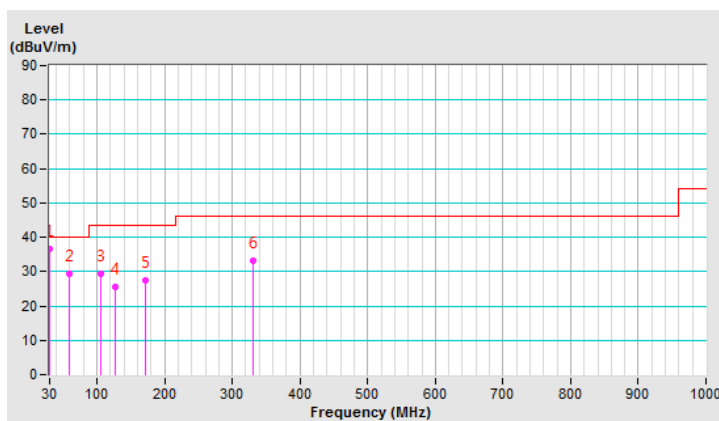
Below 1GHz Data:
BT_LE-2M

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.27	36.6 QP	40.0	-3.4	1.50 H	93	45.3	-8.7
2	59.23	29.4 QP	40.0	-10.6	1.50 H	94	37.7	-8.3
3	105.25	29.2 QP	43.5	-14.3	1.50 H	187	40.2	-11.0
4	126.68	25.6 QP	43.5	-17.9	2.00 H	18	34.3	-8.7
5	171.57	27.5 QP	43.5	-16.0	1.50 H	139	35.2	-7.7
6	331.28	33.1 QP	46.0	-12.9	1.00 H	53	38.4	-5.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

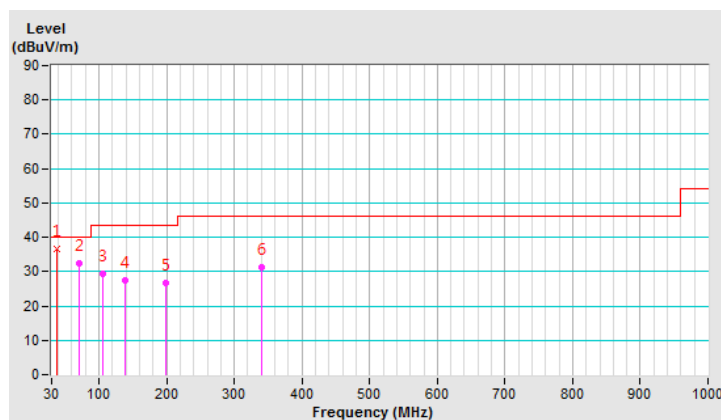


CHANNEL	TX Channel 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.77	36.7 QP	40.0	-3.3	1.00 V	110	45.0	-8.3
2	70.55	32.4 QP	40.0	-7.6	1.00 V	83	42.7	-10.3
3	105.63	29.5 QP	43.5	-14.0	3.00 V	237	40.5	-11.0
4	139.29	27.5 QP	43.5	-16.0	1.50 V	23	35.1	-7.6
5	198.79	26.6 QP	43.5	-16.9	1.00 V	0	37.0	-10.4
6	340.81	31.2 QP	46.0	-14.8	1.50 V	8	36.4	-5.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	50	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 14, 2019	Mar. 13, 2020
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
- 3 Tested Date: Feb 11, 2020

4.2.3 Test Procedures

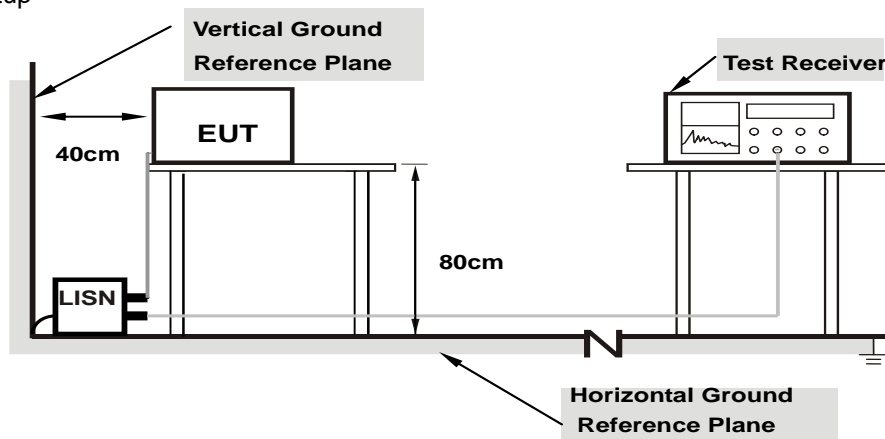
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

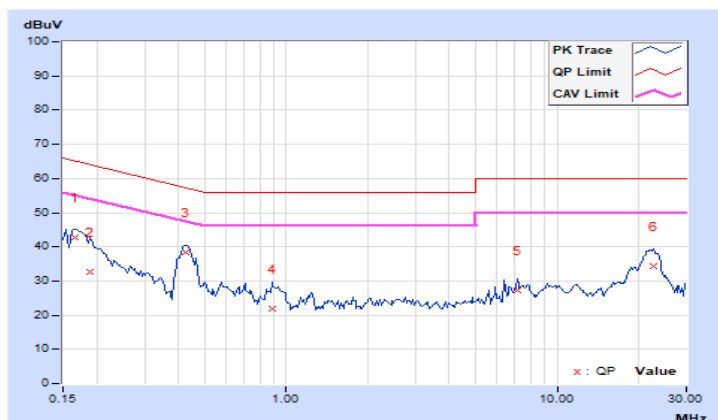
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16561	9.97	32.81	19.80	42.78	29.77	65.18	55.18	-22.40	-25.41
2	0.18901	9.97	22.76	0.21	32.73	10.18	64.08	54.08	-31.35	-43.90
3	0.42345	9.98	28.50	18.56	38.48	28.54	57.38	47.38	-18.90	-18.84
4	0.88437	10.01	11.80	1.22	21.81	11.23	56.00	46.00	-34.19	-34.77
5	7.16409	10.33	16.78	12.63	27.11	22.96	60.00	50.00	-32.89	-27.04
6	22.66796	11.12	23.36	17.32	34.48	28.44	60.00	50.00	-25.52	-21.56

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

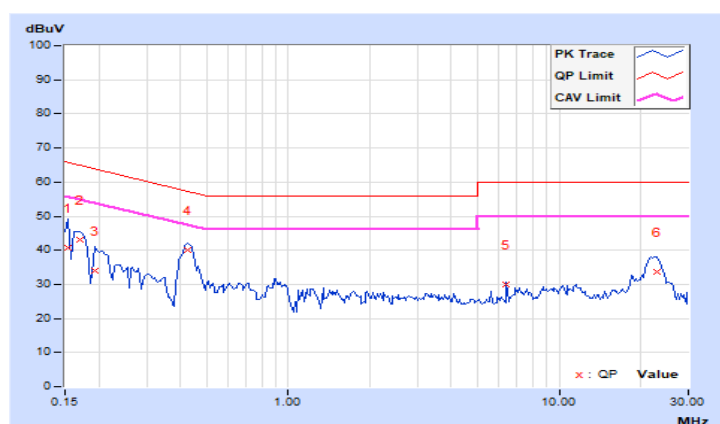


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15390	9.97	30.74	8.09	40.71	18.06	65.79	55.79	-25.08	-37.73
2	0.16952	9.97	33.04	23.26	43.01	33.23	64.98	54.98	-21.97	-21.75
3	0.19299	9.97	23.91	5.82	33.88	15.79	63.91	53.91	-30.03	-38.12
4	0.42733	9.98	30.15	20.49	40.13	30.47	57.30	47.30	-17.17	-16.83
5	6.39453	10.24	19.57	12.30	29.81	22.54	60.00	50.00	-30.19	-27.46
6	22.92572	10.85	22.81	16.73	33.66	27.58	60.00	50.00	-26.34	-22.42

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

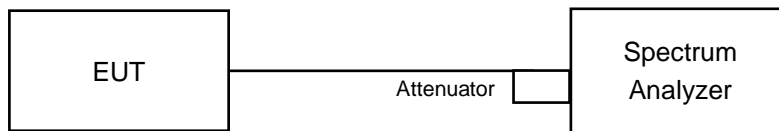


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

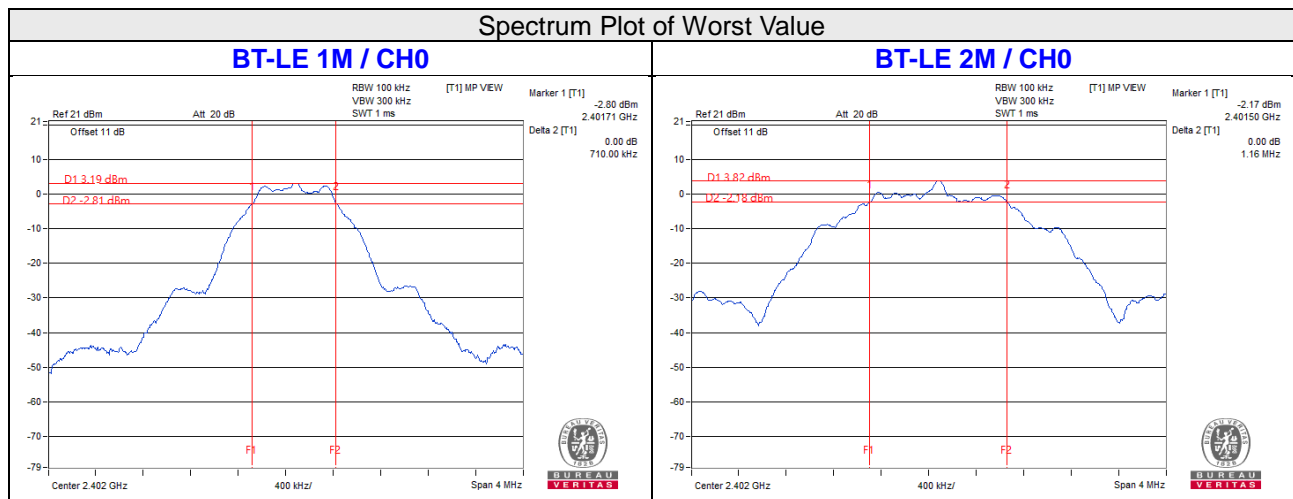
4.3.7 Test Results (Mode 3)

BT-LE 1M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	0.71	0.5	Pass
19	2440	0.72	0.5	Pass
39	2480	0.73	0.5	Pass

BT-LE 2M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
0	2402	1.16	0.5	Pass
19	2440	1.16	0.5	Pass
39	2480	1.16	0.5	Pass

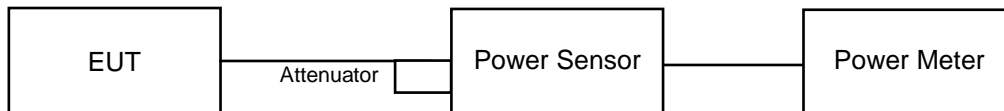


4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results (Mode 3)

FOR PEAK POWER

BT-LE 1M

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
0	2402	2.382	3.77	30	Pass
19	2440	2.415	3.83	30	Pass
39	2480	2.286	3.59	30	Pass

BT-LE 2M

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
0	2402	2.649	4.23	30	Pass
19	2440	2.618	4.18	30	Pass
39	2480	2.606	4.16	30	Pass

FOR AVERAGE POWER

BT-LE 1M

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	2.023	3.06
19	2440	1.986	2.98
39	2480	1.945	2.89

BT-LE 2M

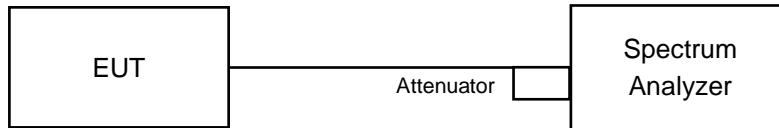
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	2.312	3.64
19	2440	2.291	3.60
39	2480	2.244	3.51

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

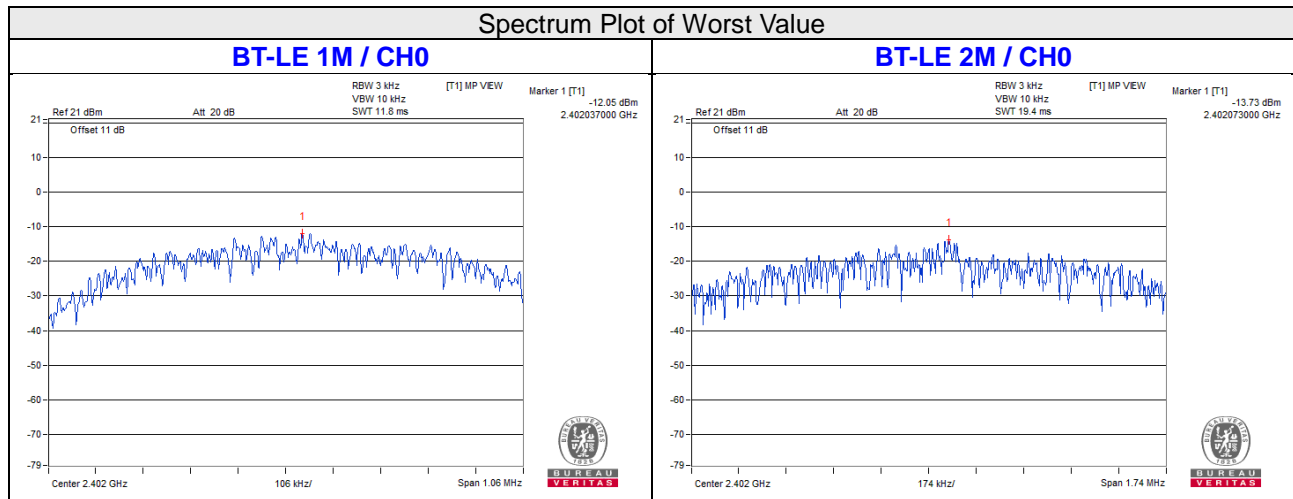
4.5.7 Test Results (Mode 3)

BT-LE 1M

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	2402	-12.05	8	Pass
19	2440	-12.14	8	Pass
39	2480	-12.13	8	Pass

BT-LE 2M

Channel	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	2402	-13.73	8	Pass
19	2440	-13.76	8	Pass
39	2480	-13.97	8	Pass

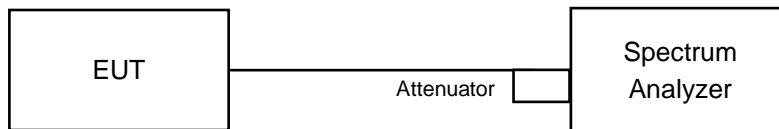


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW \geq 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

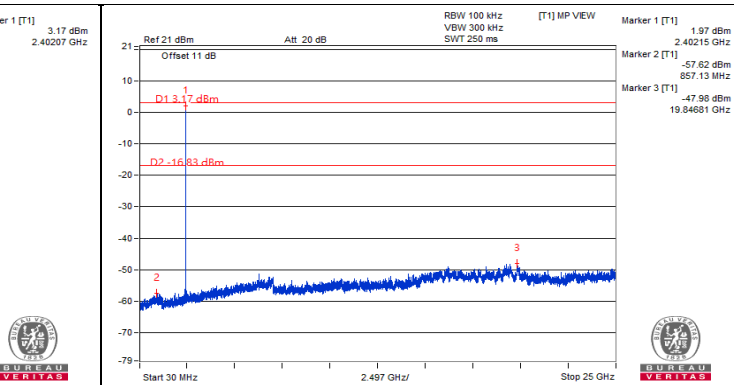
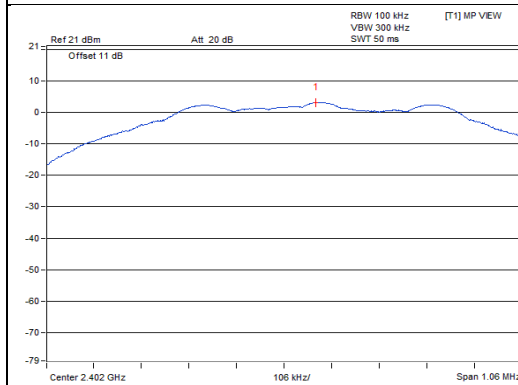
The software provided by client enabled the EUT to transmit and receive data at lowest and highest channel frequencies individually.

4.6.7 Test Results (Mode 3)

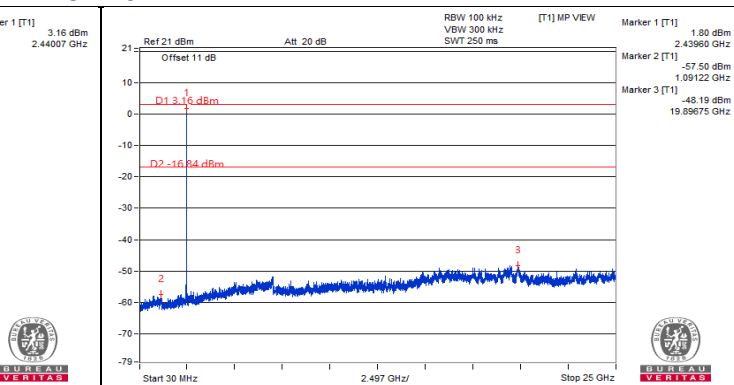
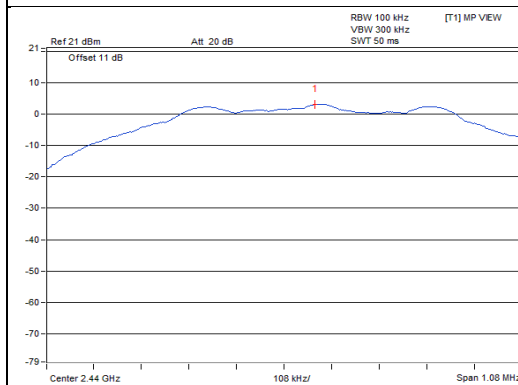
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20 dB offset below D1. It shows compliance with the requirement.

BT-LE 1M

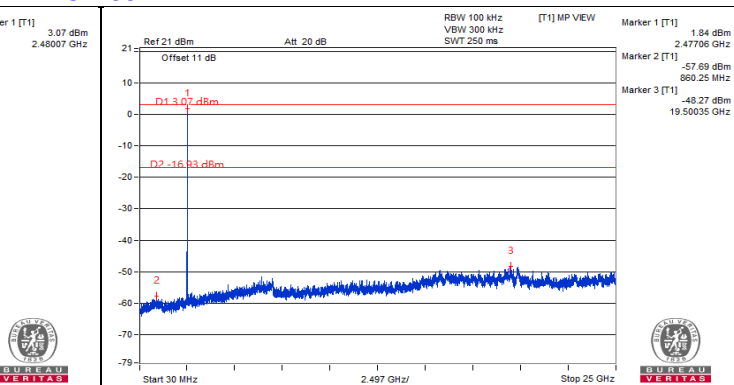
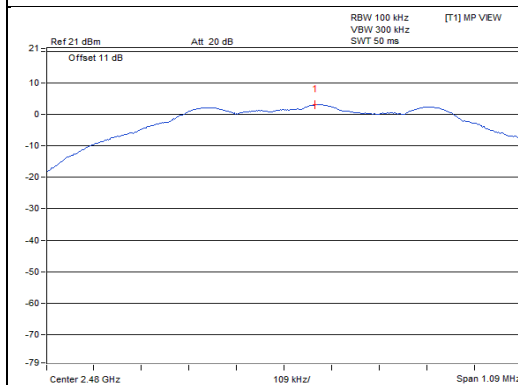
CH 0



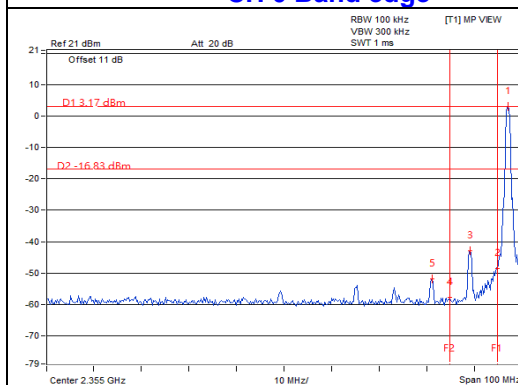
CH 19



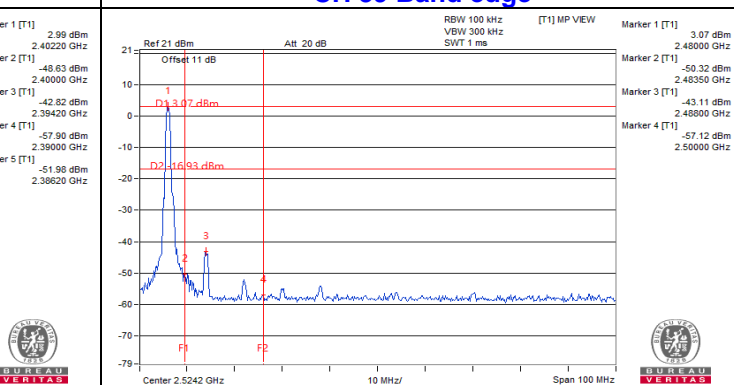
CH 39



CH 0 Band edge

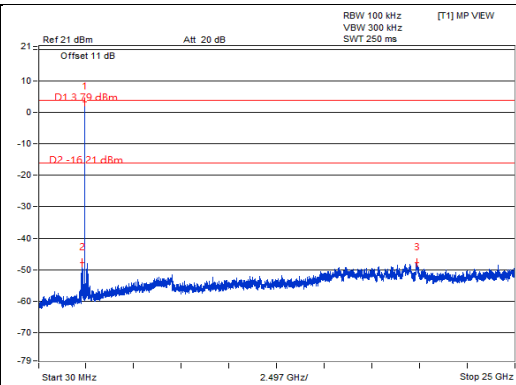
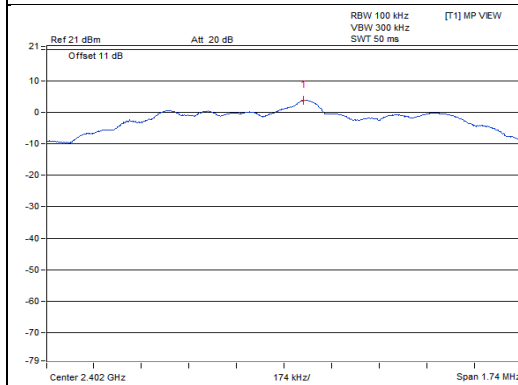


CH 39 Band edge

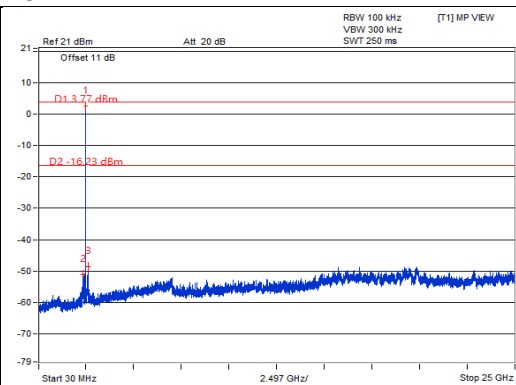
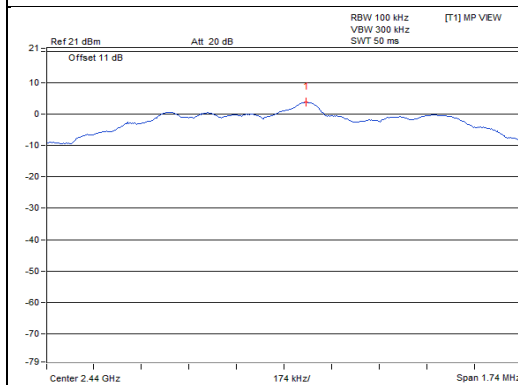


BT-LE 2M

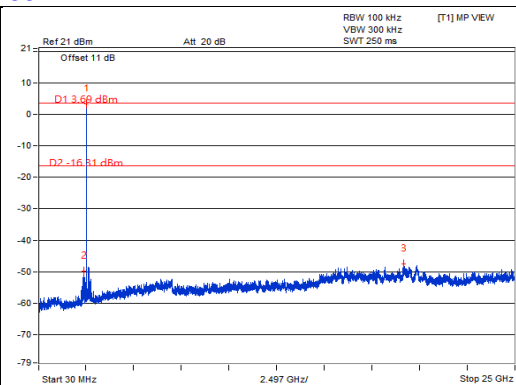
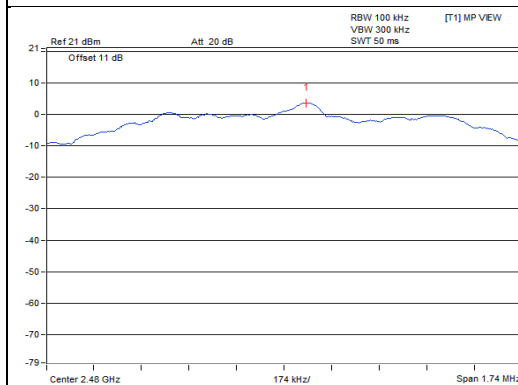
CH 0



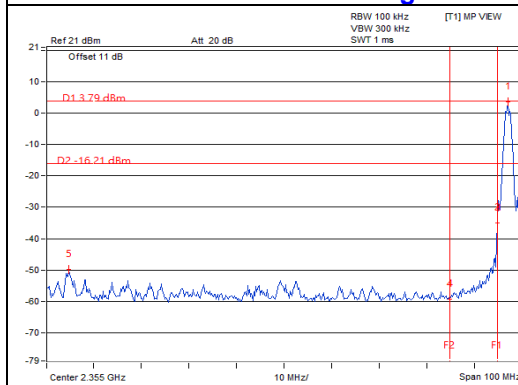
CH 19



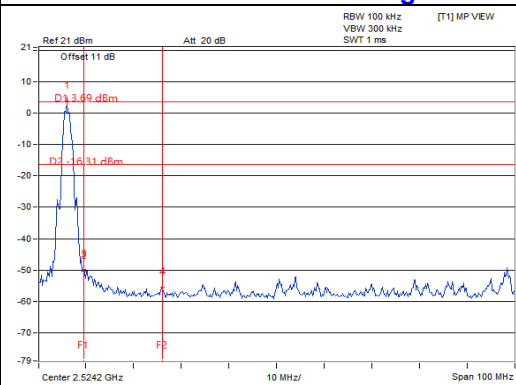
CH 39



CH 0 Band edge



CH 39 Band edge



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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