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Report Template Version: V05
Report Template Revision Date: 2021-11-03

Test Report

Report No.:	CQASZ20220601108E-02
Applicant:	Shenzhen Times Innovation Technology Co., Ltd.
Address of Applicant:	5th Floor, Building B, Baseus Intelligence Park, No.2008,Xuegang Rd, Gangtou Community, Bantian Street, Longgang District, Shenzhen.

Equipment Under Test (EUT):

Product:	Baseus Encok True Wireless Earphones
Model No.:	Baseus Encok W04
Test Model No.:	Baseus Encok W04
Brand Name:	Baseus
FCC ID:	2AY37-W4
Standards:	47 CFR Part 15, Subpart C
Date of Receipt:	2022-06-30
Date of Test:	2022-06-30 to 2022-07-07
Date of Issue:	2022-07-11
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above.**

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: K. Liao

(K Liao)

Approved By:

(Jack Ai)

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220601108E-02	Rev.01	Initial report	2022-07-11

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS

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4 General Information

4.1 Client Information

Applicant:	Shenzhen Times Innovation Technology Co., Ltd.
Address of Applicant:	5th Floor, Building B, Baseus Intelligence Park, No.2008,Xuegang Rd, Gangtou Community, Bantian Street, Longgang District, Shenzhen.
Manufacturer:	Shenzhen Times Innovation Technology Co., Ltd.
Address of Manufacturer:	5th Floor, Building B, Baseus Intelligence Park, No.2008,Xuegang Rd, Gangtou Community, Bantian Street, Longgang District, Shenzhen.
Factory:	Dongguan Ceesing Intelligent Device Manufacturing Co..Ltd
Address of Factory:	Room 301, Building 5, No. 15, Yinhu Road, Jiaoyitang, Tangxia Town, Dongguan City, Guangdong Province

4.2 General Description of EUT

Product Name:	Baseus Encok True Wireless Earphones
Model No.:	Baseus Encok W04
Test Model No.:	Baseus Encok W04
Trade Mark:	Baseus
Software Version:	V2.04
Hardware Version:	V5.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.3
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	FCC_V2.24
Antenna Type:	Chip antenna
Antenna Gain:	5.54dBi
EUT Power Supply:	Charging Box: Li-ion battery: DC 3.7V 400mAh, Charge by DC 5V for adapter
	Earphone: Li-ion battery: DC 3.7V 35mAh, Charge by DC 3.7V for Charging box

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

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH19)	2440MHz
The highest channel (CH39)	2480MHz

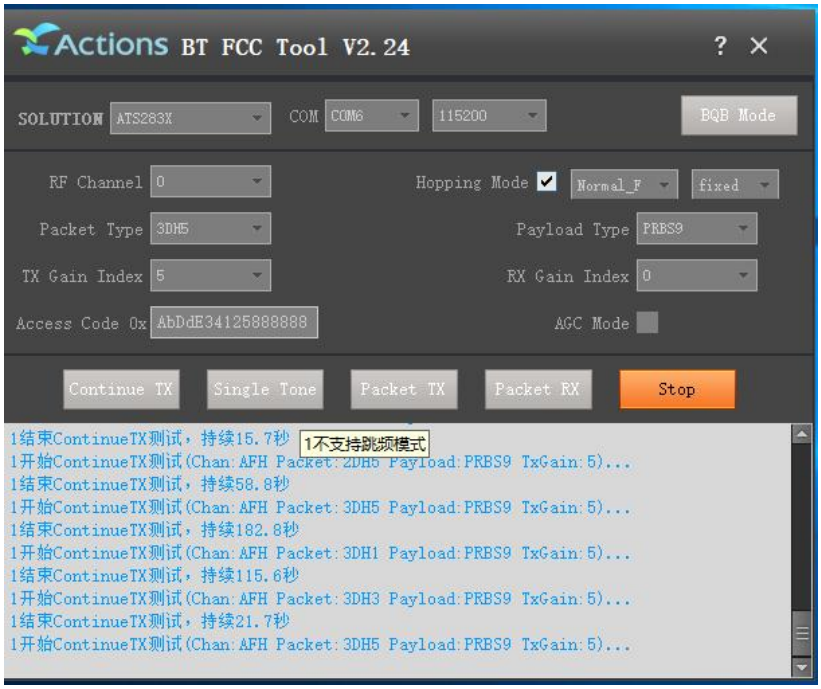
4.3 Additional Instructions

EUT Test Software Settings:	
Mode:	☒ Special software is used. ☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
EUT Power level:	Class2 (Power level is built-in set parameters and cannot be changed and selected)

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

Mode	Channel	Frequency(MHz)
GFSK	CH0	2402
	CH19	2440
	CH39	2480

Run Software:



4.4 Test Environment

Operating Environment:	
Temperature:	24.5°C
Humidity:	59% RH
Atmospheric Pressure:	1009mbar
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	MI	/	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10^{-8}
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8℃
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

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

4.8 Test Facility

• A2LA (Certificate No. 4742.01)
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Deviation from Standards

None.

4.10 Other Information Requested by the Customer

None.

4.11 Equipment List

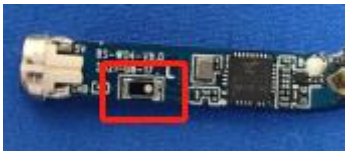
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2021/9/10	2022/9/9
Spectrum analyzer	R&S	FSU26	CQA-038	2021/9/10	2022/9/9
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2021/9/10	2022/9/9
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2021/9/10	2022/9/9
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2021/9/16	2024/9/15
Bilog Antenna	R&S	HL562	CQA-011	2021/9/16	2024/9/15
Horn Antenna	R&S	HF906	CQA-012	2021/9/16	2024/9/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/9/16	2024/9/15
Coaxial Cable (Above 1GHz)	CQA	N/A	C019	2021/9/10	2022/9/9
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2021/9/10	2022/9/9
Antenna Connector	CQA	RFC-01	CQA-080	2021/9/10	2022/9/9
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/9/10	2022/9/9
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/9/10	2022/9/9
EMI Test Receiver	R&S	ESPI3	CQA-013	2021/9/10	2022/9/9
LISN	R&S	ENV216	CQA-003	2021/9/10	2022/9/9
Coaxial cable	CQA	N/A	CQA-C009	2021/9/10	2022/9/9

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

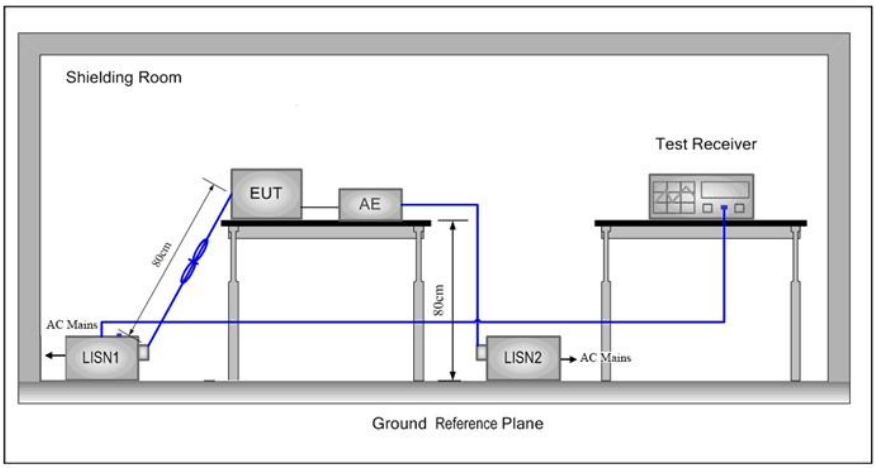
5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is Chip antenna. The best case gain of the antenna is 5.54 dBi.	

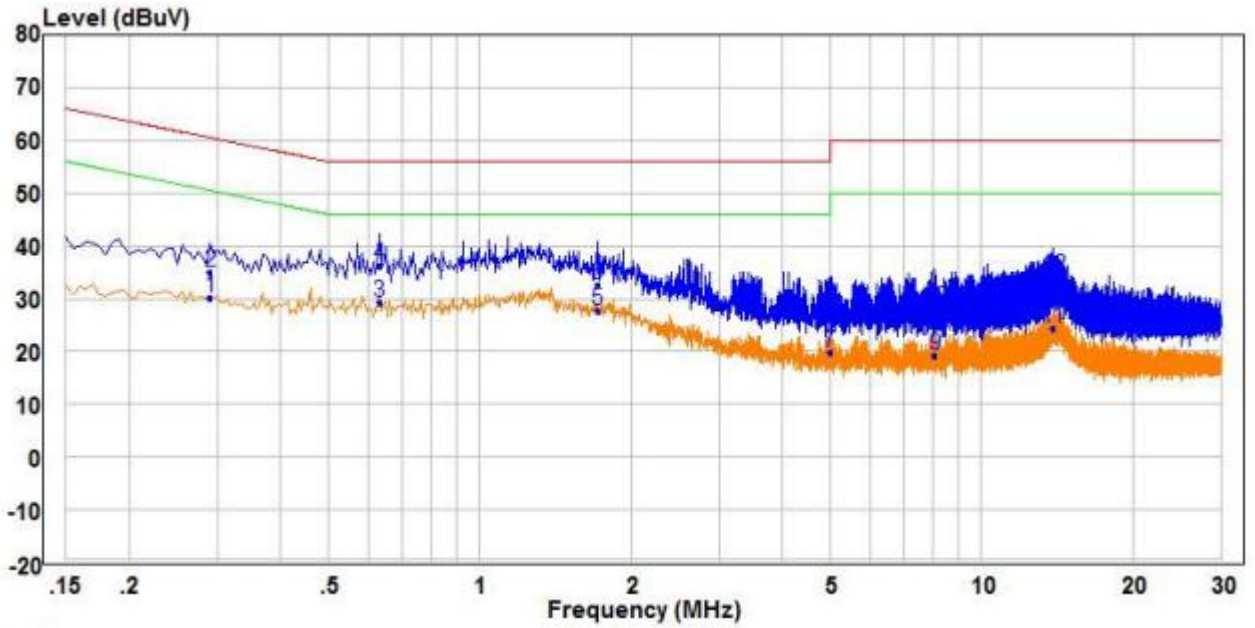
5.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Test Frequency Range:</td><td>150kHz to 30MHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr>
<tr><th>Quasi-peak</th><th>Average</th></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test Procedure:</td><td>1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</td></tr>
</table>

Test Setup:	
Test Mode:	Charging mode
Test Voltage:	AC 120V/60Hz
Test Results:	Pass

Measurement Data

Live line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.290	20.74	9.50	30.24	50.52	-20.28	Average	Line
2		0.290	25.56	9.50	35.06	60.52	-25.46	QP	Line
3	PP	0.630	19.31	9.83	29.14	46.00	-16.86	Average	Line
4	QP	0.630	26.54	9.83	36.37	56.00	-19.63	QP	Line
5		1.715	16.61	11.22	27.83	46.00	-18.17	Average	Line
6		1.715	21.41	11.22	32.63	56.00	-23.37	QP	Line
7		4.985	10.19	9.75	19.94	46.00	-26.06	Average	Line
8		4.985	19.10	9.75	28.85	56.00	-27.15	QP	Line
9		8.070	9.36	9.84	19.20	50.00	-30.80	Average	Line
10		8.070	18.32	9.84	28.16	60.00	-31.84	QP	Line
11		13.880	14.59	9.77	24.36	50.00	-25.64	Average	Line
12		13.880	24.42	9.77	34.19	60.00	-25.81	QP	Line

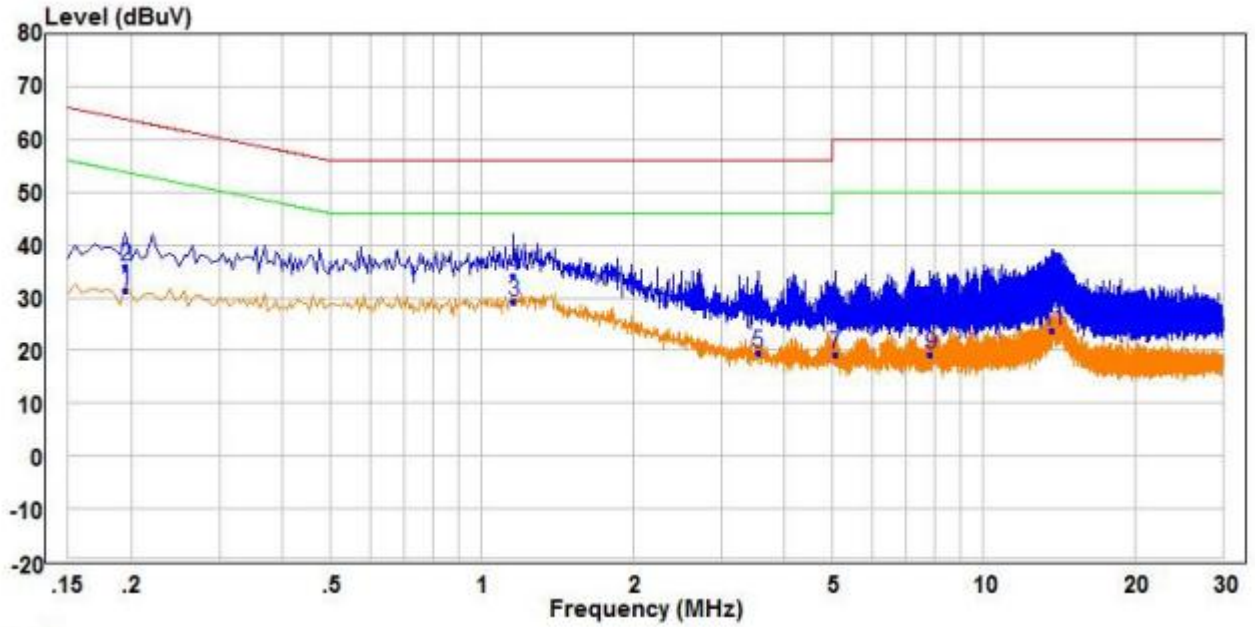
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.195	21.64	9.62	31.26	53.82	-22.56	Average	Neutral
2		0.195	26.38	9.62	36.00	63.82	-27.82	QP	Neutral
3	PP	1.160	19.54	9.71	29.25	46.00	-16.75	Average	Neutral
4	QP	1.160	24.53	9.71	34.24	56.00	-21.76	QP	Neutral
5		3.555	9.80	9.78	19.58	46.00	-26.42	Average	Neutral
6		3.555	17.19	9.78	26.97	56.00	-29.03	QP	Neutral
7		5.070	9.49	9.82	19.31	50.00	-30.69	Average	Neutral
8		5.070	18.02	9.82	27.84	60.00	-32.16	QP	Neutral
9		7.830	9.41	9.83	19.24	50.00	-30.76	Average	Neutral
10		7.830	18.34	9.83	28.17	60.00	-31.83	QP	Neutral
11		13.740	14.01	9.77	23.78	50.00	-26.22	Average	Neutral
12		13.740	23.38	9.77	33.15	60.00	-26.85	QP	Neutral

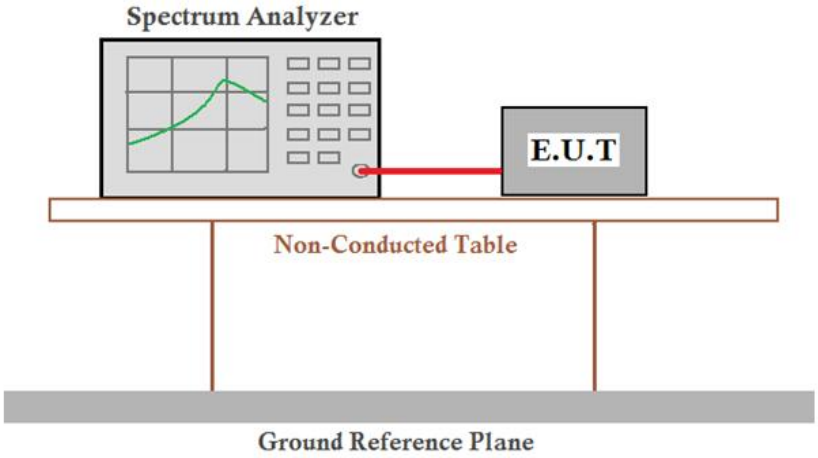
Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

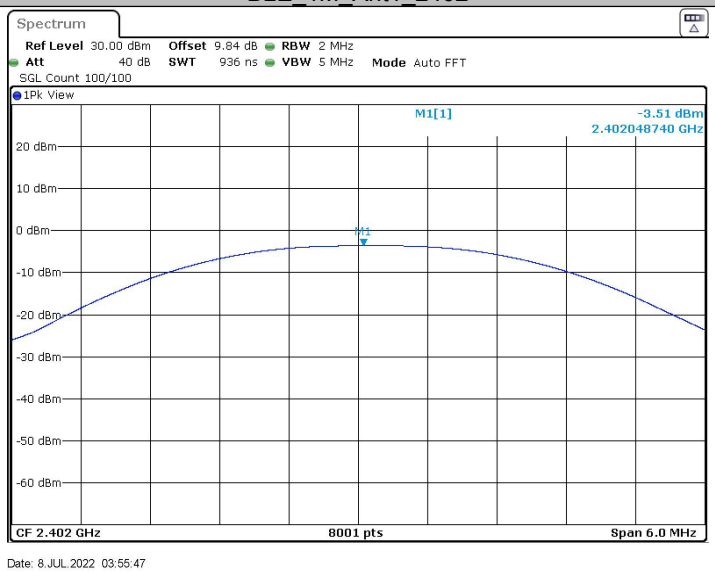
5.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(1)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	30dBm
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

Measurement Data

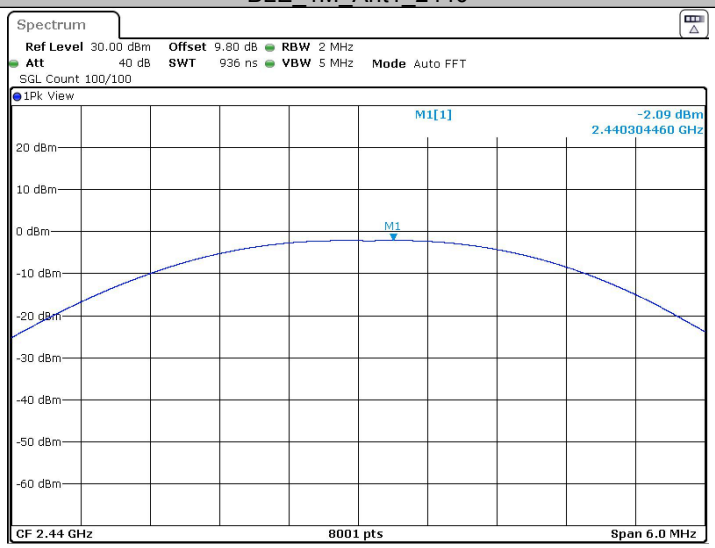
GFSK mode (1Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-3.51	30.00	Pass
Middle	-2.09	30.00	Pass
Highest	-3.3	30.00	Pass
GFSK mode (2Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-3.55	30.00	Pass
Middle	-2.18	30.00	Pass
Highest	-3.41	30.00	Pass

BLE_1M_Ant1_2402



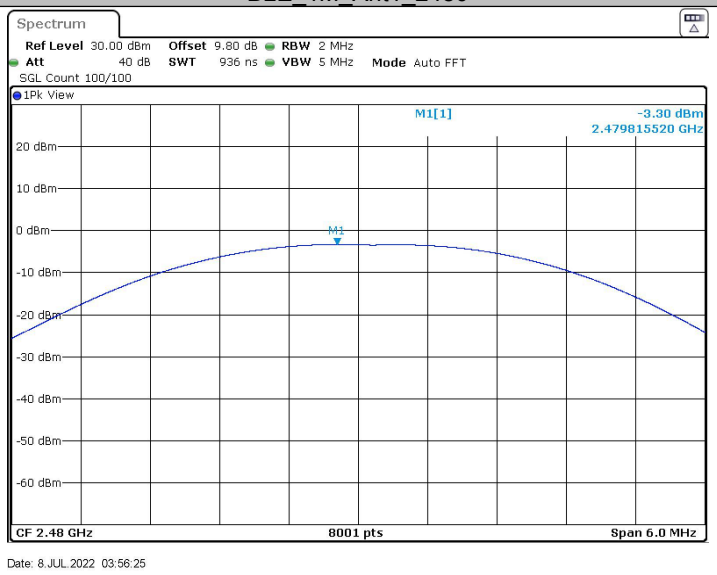
Date: 8.JUL.2022 03:55:47

BLE_1M_Ant1_2440

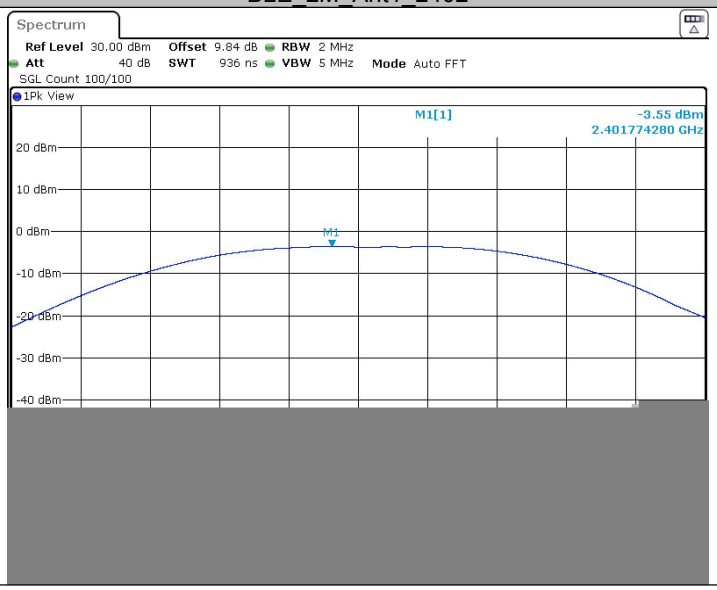


Date: 8.JUL.2022 03:56:04

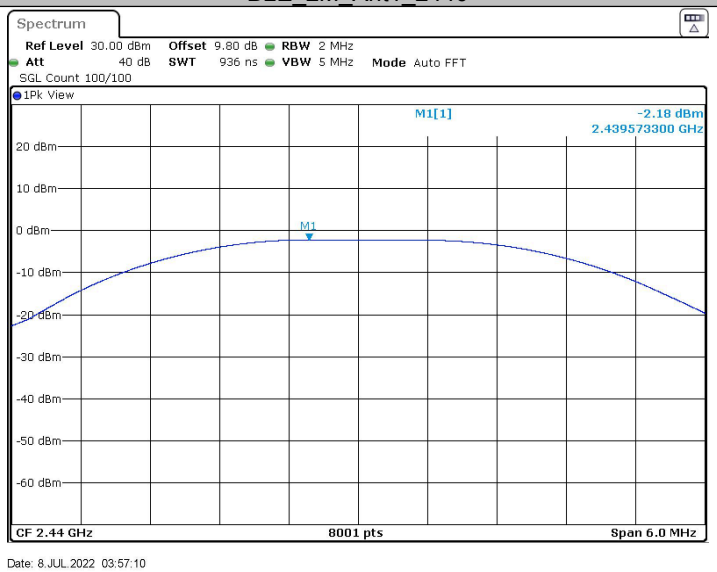
BLE_1M_Ant1_2480



BLE_2M_Ant1_2402

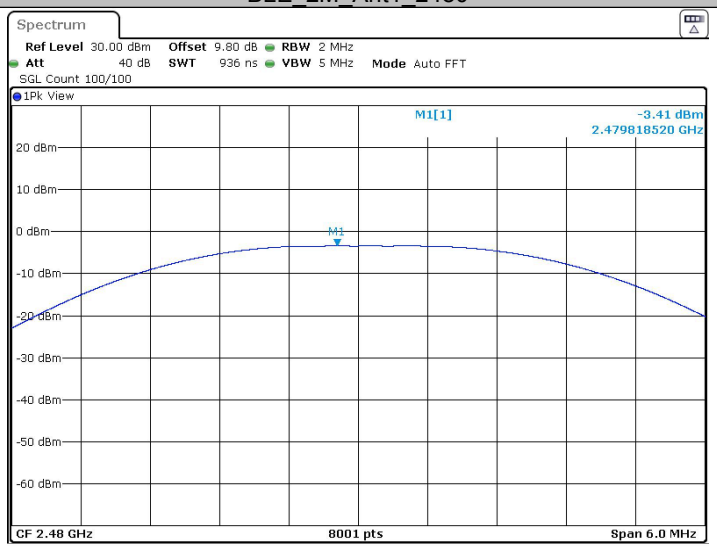


BLE_2M_Ant1_2440



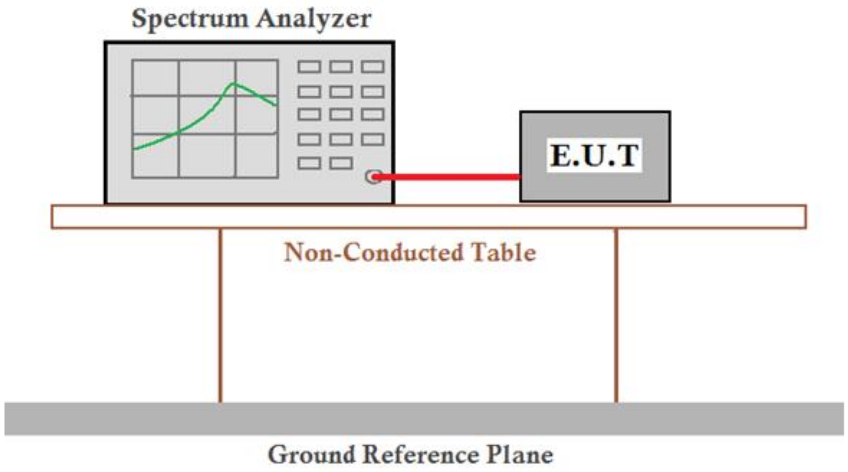
Date: 8.JUL.2022 03:57:10

BLE_2M_Ant1_2480



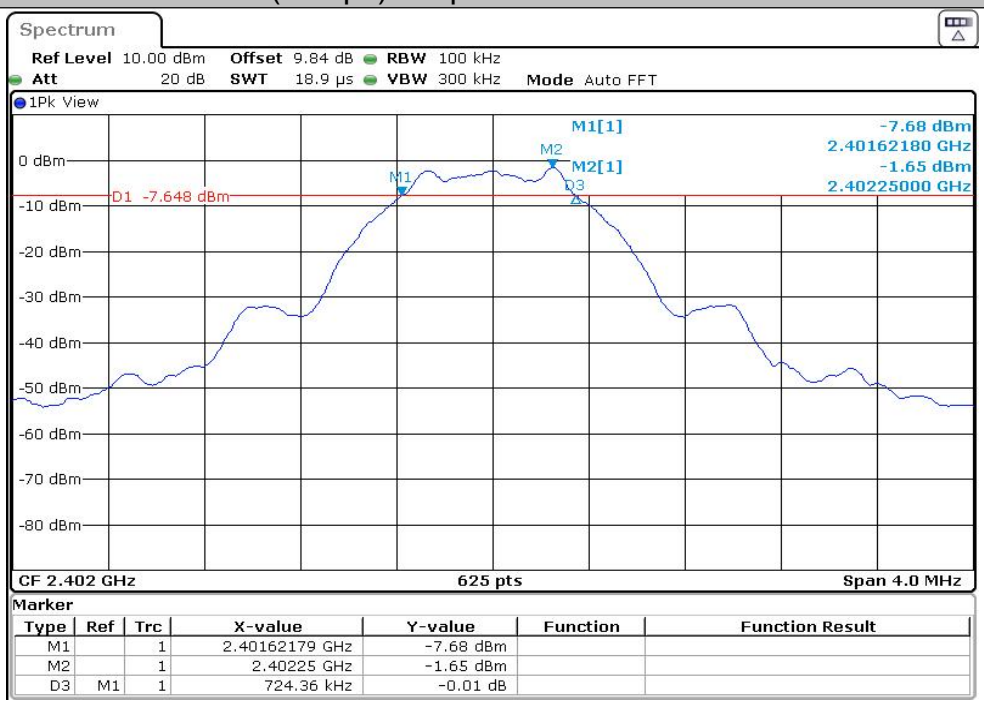
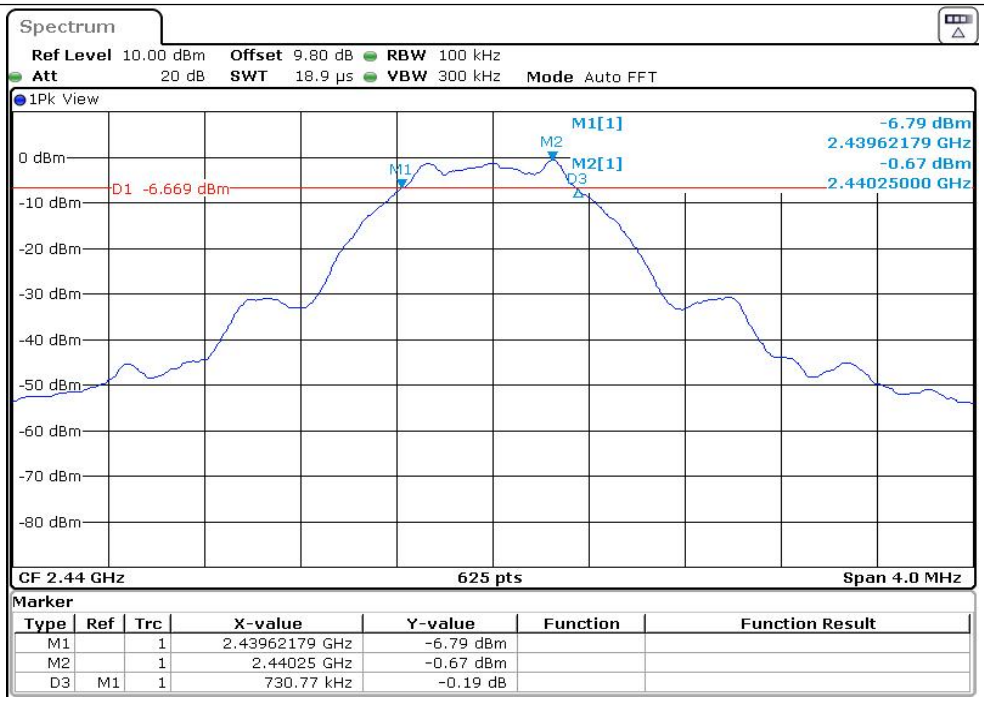
Date: 8.JUL.2022 03:57:30

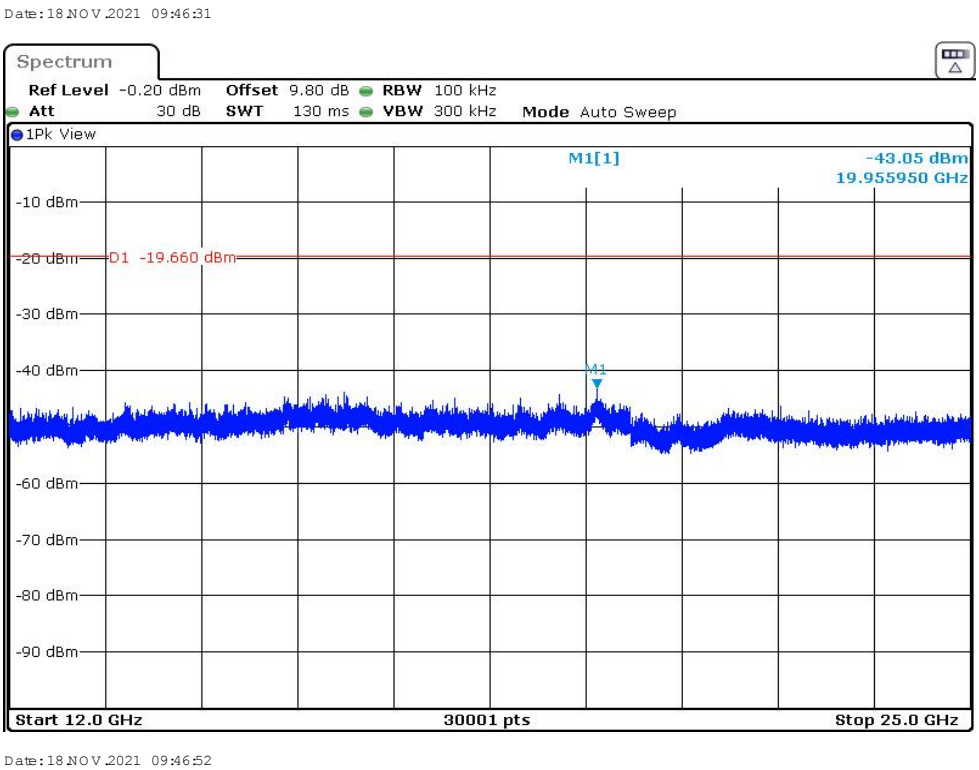
5.4 6dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	≥ 500 kHz
Instruments Used:	Refer to section 4.11 for details.
Test Results:	Pass

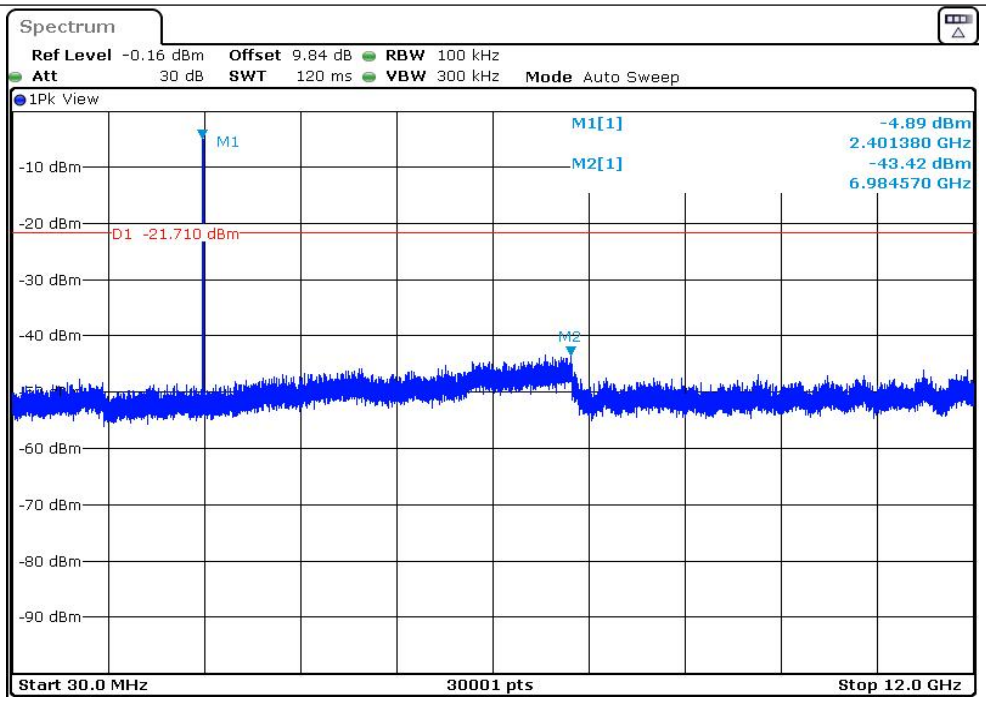
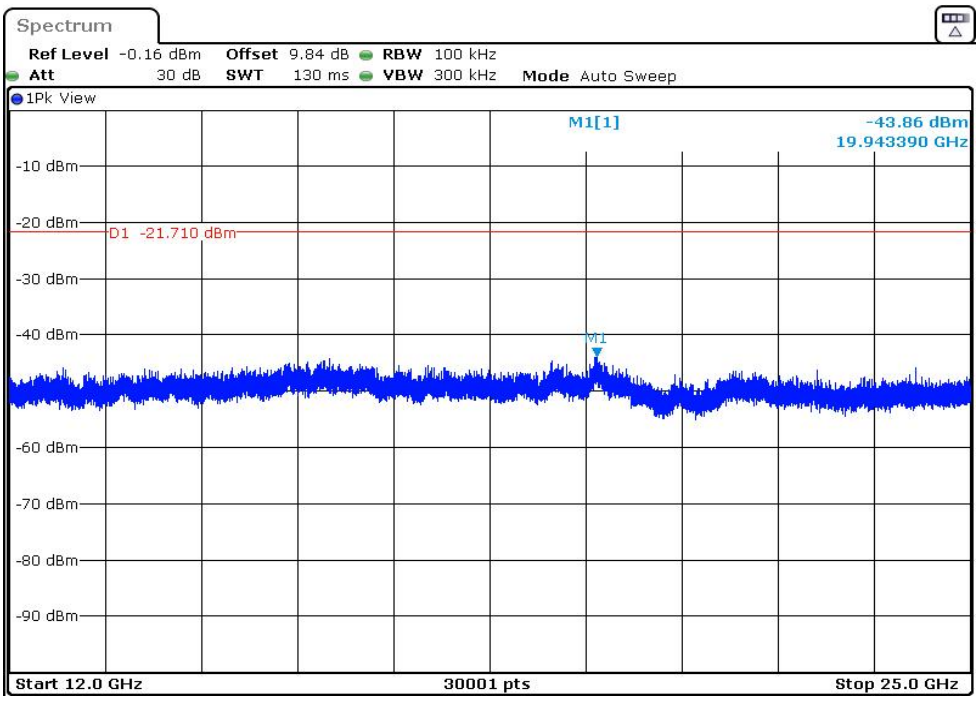
Measurement Data

GFSK mode (1Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	0.724	≥500	Pass
Middle	0.731	≥500	Pass
Highest	0.724	≥500	Pass
GFSK mode (2Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	1.282	≥500	Pass
Middle	1.282	≥500	Pass
Highest	1.282	≥500	Pass

(1Mbps) Graphs	
LCH	
MCH	

Puw/BLE/HCH	 Date: 18.NOV.2021 09:46:31 Spectrum Ref Level -0.20 dBm Offset 9.80 dB RBW 100 kHz Att 30 dB SWT 130 ms VBW 300 kHz Mode Auto Sweep 1Pk View M1[1] -43.05 dBm 19.955950 GHz -10 dBm -20 dBm D1 -19.660 dBm -30 dBm -40 dBm M1 -60 dBm -70 dBm -80 dBm -90 dBm Start 12.0 GHz 30001 pts Stop 25.0 GHz Date: 18.NOV.2021 09:46:52

BLE_LCH_ (2Mbps) Graphs	
Pref/BLE/LCH	

Puw/BLE/LCH	 Date: 10.NOV.2021 06:37:02  Date: 10.NOV.2021 06:37:23