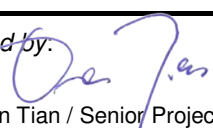
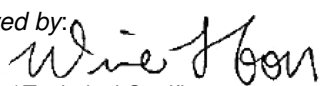


Prüfbericht-Nr.: <i>Test Report No.:</i>	17046279 001	Auftrags-Nr.: <i>Order No.:</i>	164028608	Seite 1 von 38 <i>Page 1 of 38</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	05.01.2015	
Auftraggeber: <i>Client:</i>	Compupal (Group) Corporation. No.1555 Jiashan Avenue, Jiashan 314113, Zhejiang, China			
Prüfgegenstand: <i>Test item:</i>	Portable Bluetooth Speaker			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	NS-CSPBT02, NS-CSPBT03			
Auftrags-Inhalt: <i>Order content:</i>	FCC Certification and Verification			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart C Section 15.107 CFR47 FCC Part 15: Subpart C Section 15.109			
Wareneingangsdatum: <i>Date of receipt:</i>	05.01.2015			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000151433-001 to 003			
Prüfzeitraum: <i>Testing period:</i>	07.01.2015 - 26.01.2015			
Ort der Prüfung: <i>Place of testing:</i>	Shenzhen Accurate Technology Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 10.01.2015 Owen Tian / Senior Project Manager		 23.01.2015 Winnie Hou / Technical Certifier		
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT*RESULT: Passed***5.1.2 PEAK OUTPUT POWER***RESULT: Passed***5.1.3 CONDUCTED POWER SPECTRAL DENSITY***RESULT: Passed***5.1.4 -6dB BANDWIDTH***RESULT: Passed***5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100KHZ BANDWIDTH***RESULT: Passed***5.1.6 SPURIOUS EMISSION***RESULT: Passed***5.1.7 20dB BANDWIDTH***RESULT: Passed***5.1.8 FREQUENCY SEPARATION***RESULT: Passed***5.1.9 NUMBER OF HOPPING FREQUENCY***RESULT: Passed***5.1.10 TIME OF OCCUPANCY***RESULT: Passed***5.1.11 CONDUCTED EMISSIONS***RESULT: Passed***5.1.12 RADIATED EMISSION***RESULT: Passed*

Contents

1.	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2.	TEST SITES	4
2.1	TEST FACILITIES	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
2.3	TRACEABILITY	6
2.4	CALIBRATION	6
2.5	MEASUREMENT UNCERTAINTY	6
2.6	LOCATION OF ORIGINAL DATA	6
2.7	STATUS OF FACILITY USED FOR TESTING	6
3.	GENERAL PRODUCT INFORMATION	7
3.1	PRODUCT FUNCTION AND INTENDED USE	7
3.2	RATINGS AND SYSTEM DETAILS	7
3.3	INDEPENDENT OPERATION MODES	9
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	9
3.5	SUBMITTED DOCUMENTS	9
4.	TEST SET-UP AND OPERATION MODES	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION	10
4.2	TEST OPERATION AND TEST SOFTWARE	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	10
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
4.5	TEST SETUP DIAGRAM	11
5.	TEST RESULTS	13
5.1	TRANSMITTER REQUIREMENT & TEST SUITES	13
5.1.1	<i>Antenna Requirement</i>	<i>13</i>
5.1.2	<i>Peak Output Power</i>	<i>14</i>
5.1.3	<i>Conducted Power Spectral Density</i>	<i>15</i>
5.1.4	<i>-6dB Bandwidth</i>	<i>16</i>
5.1.5	<i>Conducted spurious emissions measured in 100kHz Bandwidth</i>	<i>17</i>
5.1.6	<i>Spurious Emission</i>	<i>26</i>
5.1.7	<i>20dB Bandwidth</i>	<i>27</i>
5.1.8	<i>Frequency Separation</i>	<i>28</i>
5.1.9	<i>Number of hopping frequency</i>	<i>29</i>
5.1.10	<i>Time of Occupancy</i>	<i>30</i>
5.1.11	<i>Conducted emissions</i>	<i>32</i>
5.1.12	<i>Radiated Emission</i>	<i>33</i>
6.	PHOTOGRAPHS OF THE TEST SET-UP	34
7.	LIST OF TABLES	38
8.	LIST OF PHOTOGRAPHS	38

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix 1: Test Result

2. Test Sites

2.1 Test Facilities

Shenzhen Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China

FCC Registration No.: 752051

The tests at the test site have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Spurious emission and Radiated emission				
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	2016-01-09
Test Receiver	Rohde&Schwarz	ESCS30	100307	2016-01-09
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	2016-01-09
Loop Antenna	Schwarzbeck	FMZB1516	1516131	2016-01-09
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	2016-01-09
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	2016-01-09
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	2016-01-09
Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	2016-01-09
Radio Test Suite				
Spectrum Analyzer	Rohde & Schwarz	FSV40	101495	2016-01-09
Conducted Emission				
Test Receiver	Rohde & Schwarz	ESCS30	100307	2016-01-09
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	2016-01-09
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	2016-01-09
50 ^Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	2016-01-09

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are $\pm 3\text{dB}$.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen Accurate Technology Co., Ltd. test facility located at F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUTs are Bluetooth Portable Speakers with Bluetooth 4.0 dual mode. Both models are identical in function, Bluetooth module and components employed except different PCB layout of main board and enclosure. For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	Portable Bluetooth Speaker
Type Designation:	NS-CSPBT02, NS-CSPBT03
FCC ID	Z5YNS-CSPBT02

Table 3: Technical Specification of Bluetooth (BDR & EDR)

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	4.0 Dual mode
Channel separation	1MHz
Extreme Temperature Range	-10°C to +55°C
Operation Voltage	DC3.7V via lithium Battery
Modulation	GFSK, 8DPSK, $\pi/4$ DQPSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	-0.61dBi
RF Output Power	0.005W (6.72dBm)

Table 4: RF channel and frequency of Bluetooth (BDR & EDR mode)

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

Table 5: Technical Specification of Bluetooth (low energy)

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	4.0 Dual mode
Channel separation	2MHz
Extreme Temperature Range	-10°C to +55°C
Operation Voltage	DC3.7V via lithium Battery
Modulation	GFSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	-0.61dBi
RF Output Power	0.006W (7.56dBm)

Table 6: RF channel and frequency of Bluetooth low energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	10	2422.00	20	2442.00	30	2462.00
1	2404.00	11	2424.00	21	2444.00	31	2464.00
2	2406.00	12	2426.00	22	2446.00	32	2466.00
3	2408.00	13	2428.00	23	2448.00	33	2468.00
4	2410.00	14	2430.00	24	2450.00	34	2470.00
5	2412.00	15	2432.00	25	2452.00	35	2472.00
6	2414.00	16	2434.00	26	2454.00	36	2474.00
7	2416.00	17	2436.00	27	2456.00	37	2476.00
8	2418.00	18	2438.00	28	2458.00	38	2478.00
9	2420.00	19	2440.00	29	2460.00	39	2480.00

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Traditional Bluetooth
 - 1. Transmitting on low channel
 - 2. Transmitting on middle channel
 - 3. Transmitting on high channel
- B. On, Bluetooth low energy
 - 1. Transmitting on low channel
 - 2. Transmitting on middle channel
 - 3. Transmitting on high channel
- C. Charge
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Technical Description
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2003.

Due to models' differences indicated in clause 3.1, RF test was applied on model NS-CSPBT03 only, conducted emission and radiated emission were applied on both models.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested with following accessories:

Description	Manufacturer	Type	S/N
Personal computer	HP	Compaq dx2040	CNG0231YVS
LCD Monitor	DELL	E178FPC	N/A
Mouse	DELL	M071KC	410042355
Keyboard	DELL	SK-8110	LR86682
Printer	HP	1015	CNFG030424

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

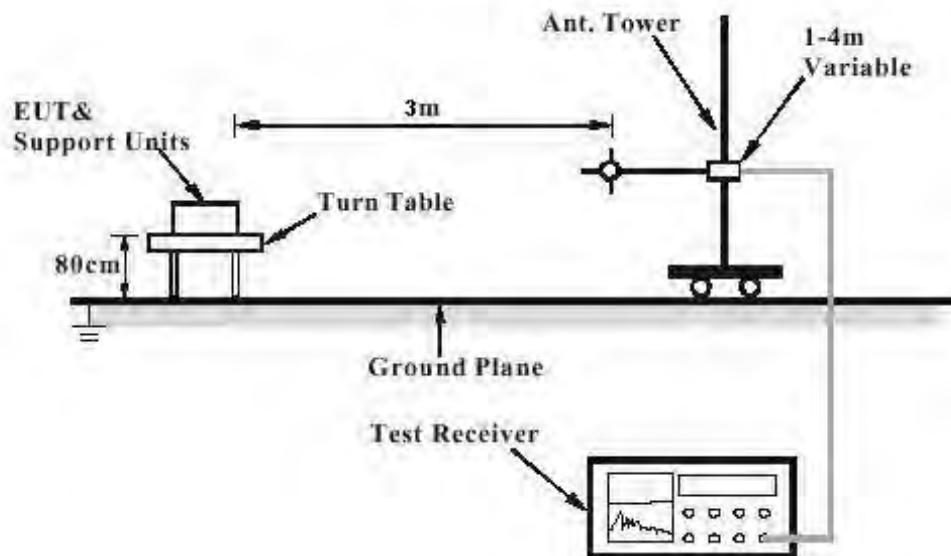


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

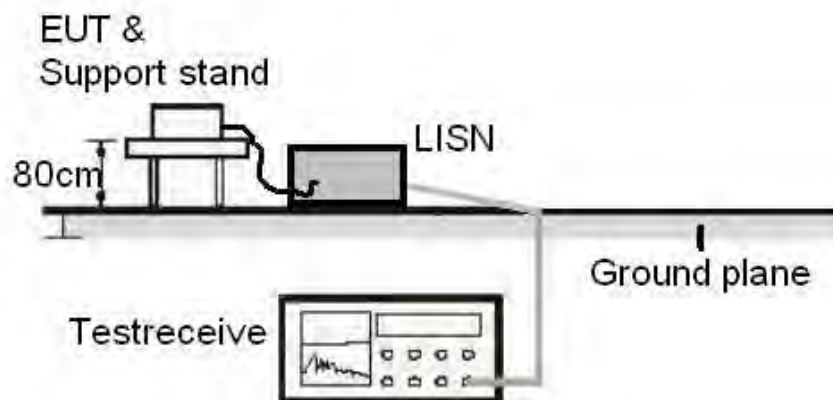
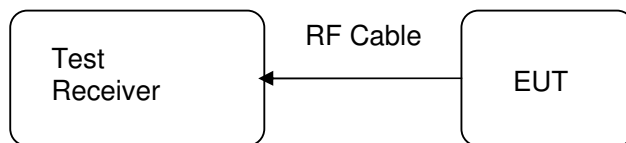


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Passed**

Test date	:	2015-01-07
Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is -0.61dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT photo for details.

5.1.2 Peak Output Power

RESULT:
Passed

Test date : 2015-01-07
 Test standard : FCC Part 15.247(b)(3)
 Basic standard : ANSI C63.4: 2003
 Limit : 1 Watt
 Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 7: Test result of Peak Output Power, BR

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	4.42	0.003	1
Middle Channel	2440	6.67	0.005	1
High Channel	2480	6.72	0.005	1

Table 8: Test result of Peak Output Power, EDR

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	3.03	0.002	1
Middle Channel	2440	5.45	0.004	1
High Channel	2480	5.54	0.004	1

Table 9: Test result of Peak Output Power, low energy

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(W)
Low Channel	2402	6.12	0.004	1
Middle Channel	2440	7.42	0.006	1
High Channel	2480	7.56	0.006	1

5.1.3 Conducted Power Spectral Density

RESULT:**Passed**

Test date : 2015-01-07
Test standard : FCC Part 15.247(e)
Basic standard : ANSI C63.4: 2003
Limit : 8dBm/3kHz
Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 10: Test result of Power Spectral Density, low energy

Channel	Channel Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
Low Channel	2402	-8.64	8
Middle Channel	2440	-7.14	8
High Channel	2480	-8.10	8

5.1.4 -6dB Bandwidth

RESULT:**Passed**

Date of testing : 2015-01-07
Test standard : FCC Part 15.247(a)(2)
Basic standard : ANSI C63.4: 2003
Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 11: Test result of 6dB Bandwidth, low energy

Channel	Channel Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2402	648	500	Pass
Mid Channel	2440	642	500	Pass
High Channel	2480	642	500	Pass

5.1.5 Conducted spurious emissions measured in 100kHz Bandwidth

RESULT:**Passed**

Date of testing	:	2015-01-07
Test standard	:	FCC part 15.247(d)
Basic standard	:	ANSI C63.4: 2003
Limit	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shield room

Test setup

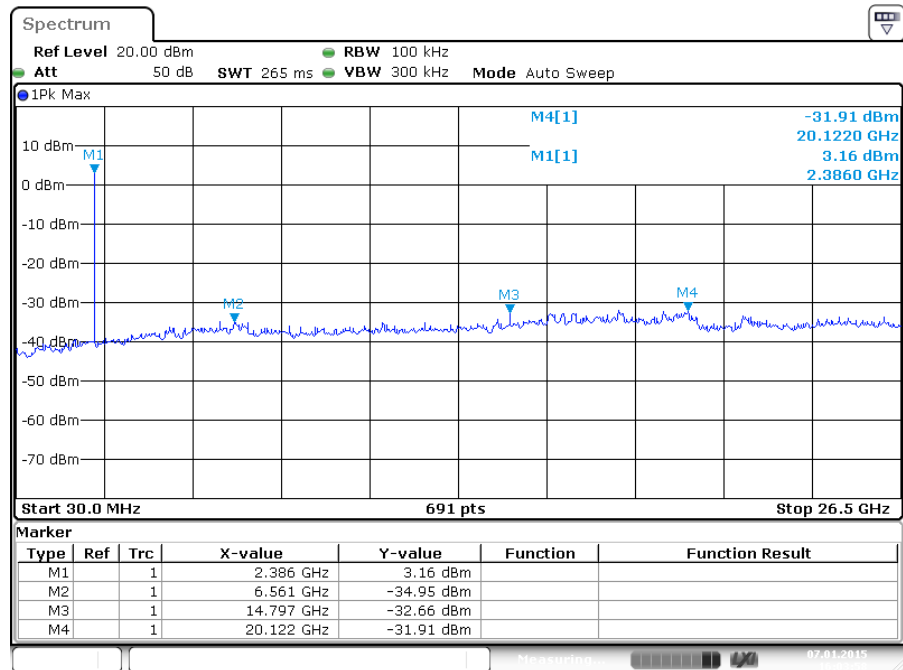
Test Channel	:	Low/ High
Operation mode	:	A
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

All emissions are more than 20dB below fundamental, details refer to following test plot, and compliance is achieved as well.

Test Plot of 100kHz Bandwidth of Frequency Band Edge

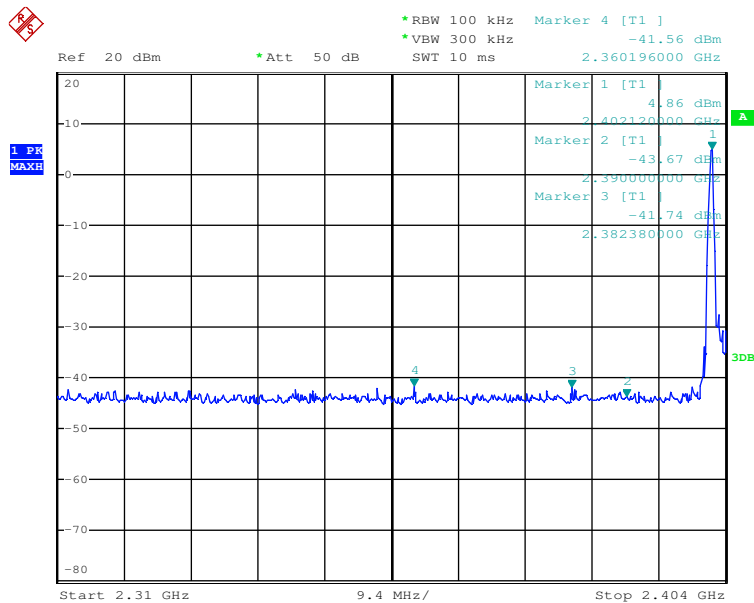
BDR mode

Low Channel

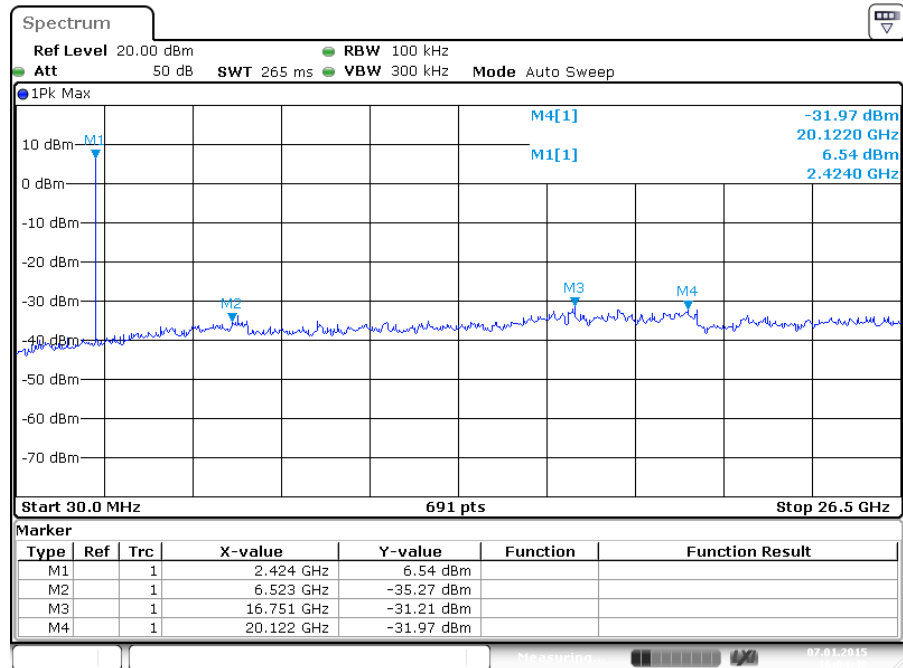


Date: 7.JAN.2015 16:03:58

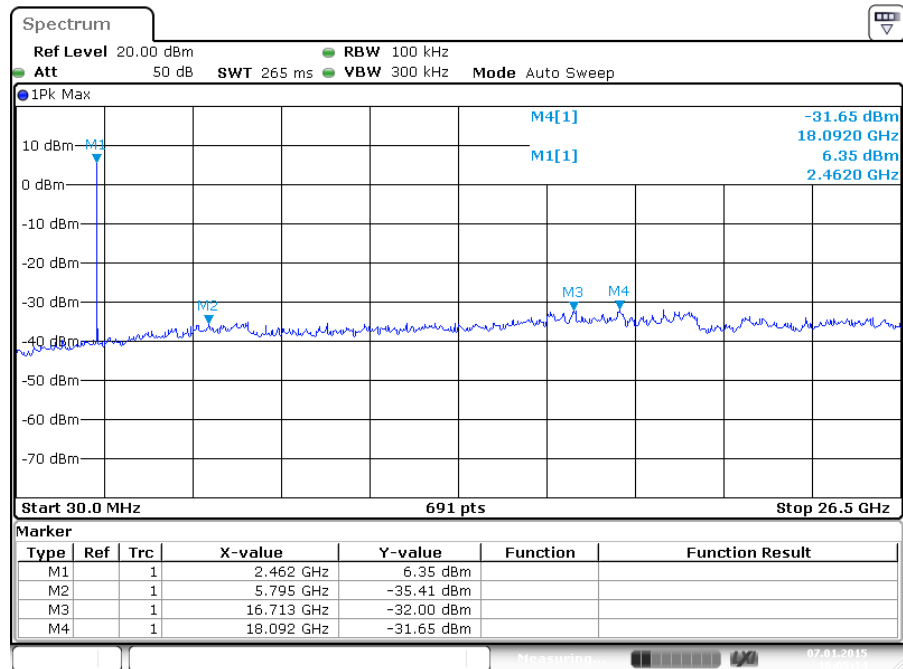
Low Channel, Band Edge



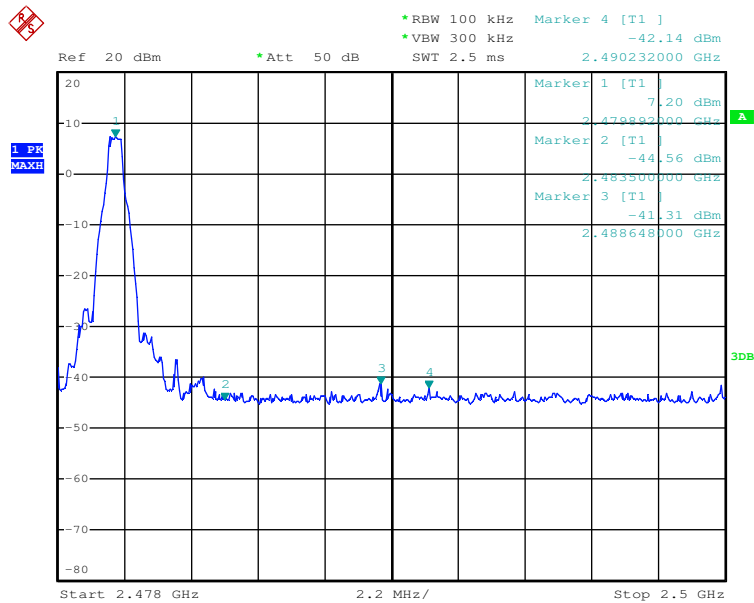
Date: 7.JAN.2015 14:07:16

Middle Channel


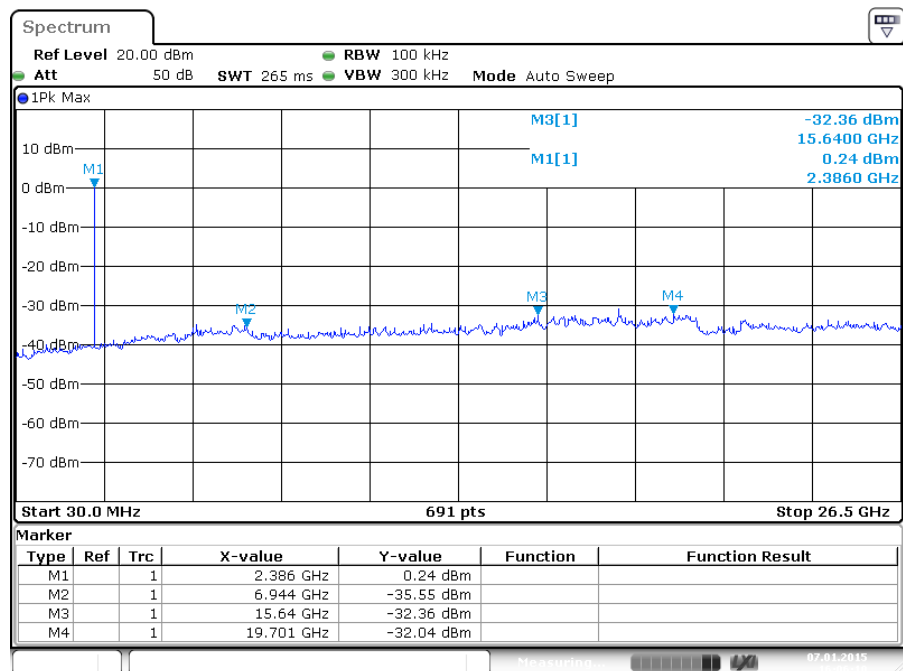
Date: 7.JAN.2015 16:04:41

High Channel


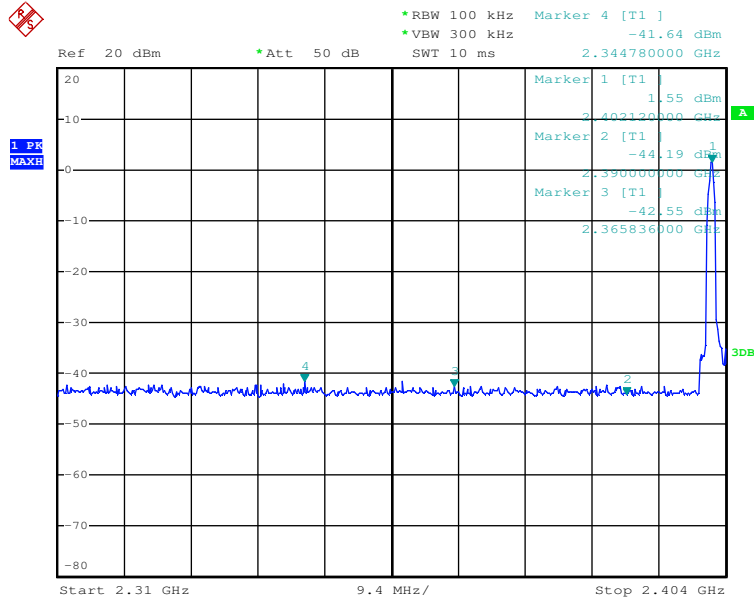
Date: 7.JAN.2015 16:05:14

High Channel, Band Edge


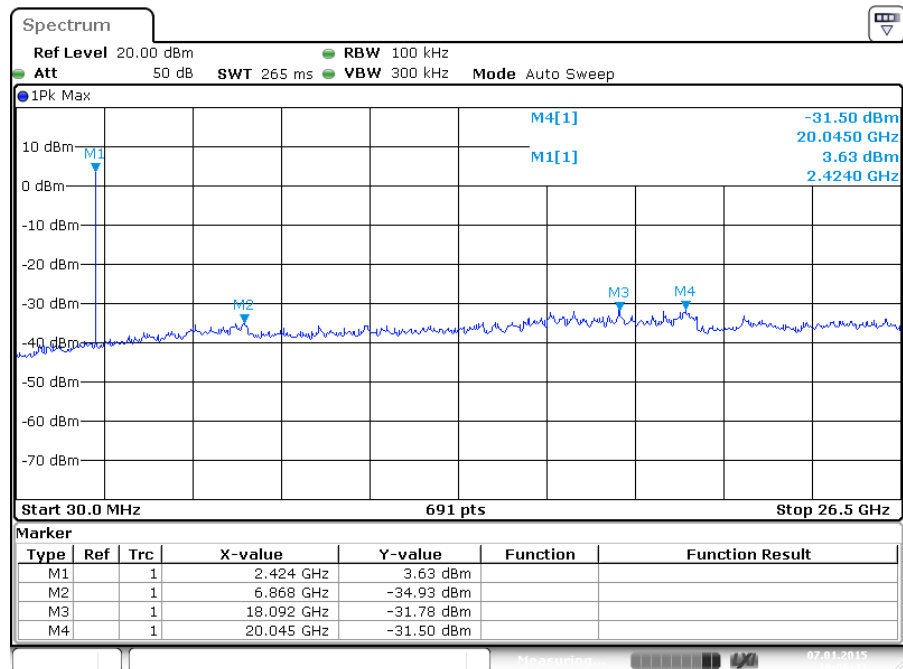
Date: 7.JAN.2015 14:09:13

EDR mode
Low Channel


Date: 7.JAN.2015 16:06:10

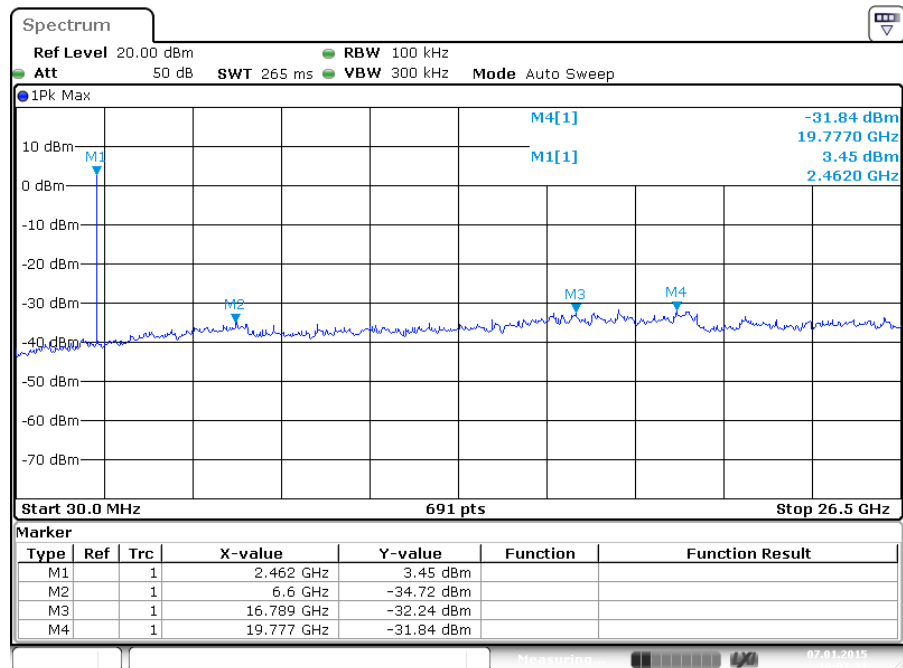
Low Channel, Band Edge


Date: 7.JAN.2015 14:15:42

Middle Channel


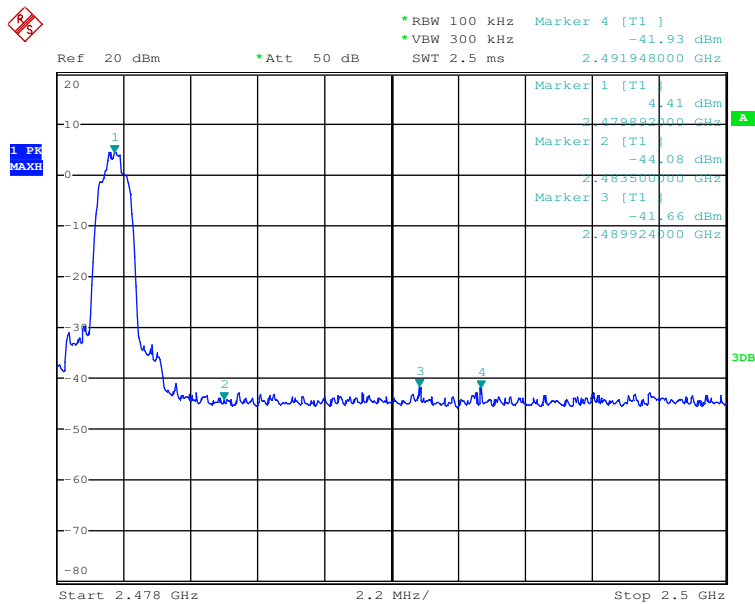
Date: 7.JAN.2015 16:06:41

High Channel

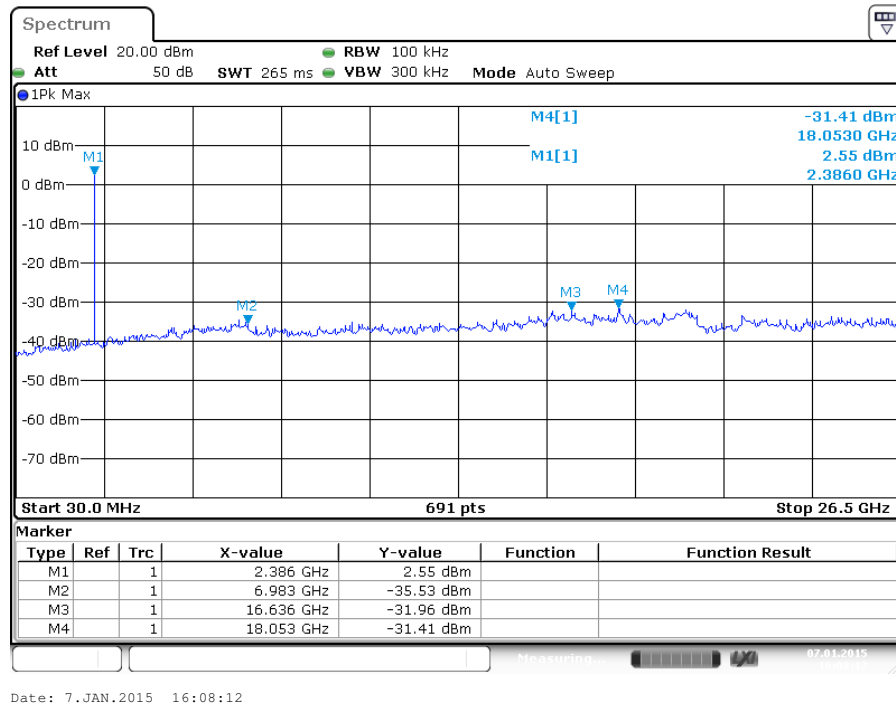
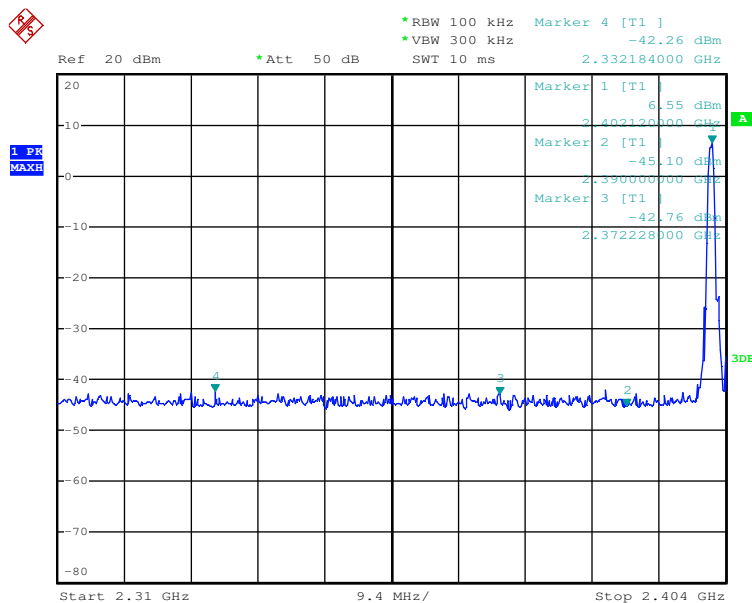


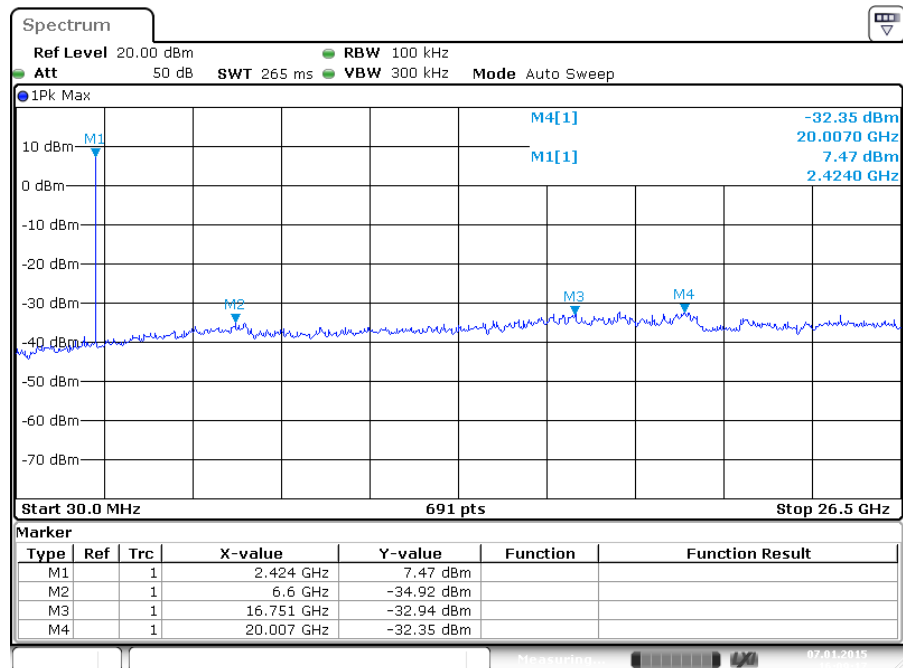
Date: 7.JAN.2015 16:07:21

High Channel, Band Edge

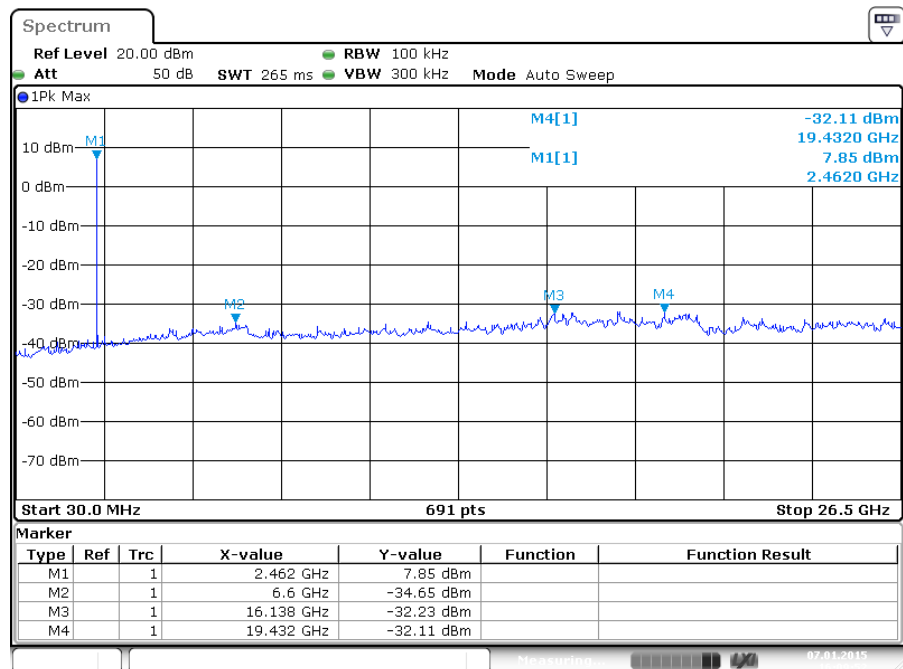


Date: 7.JAN.2015 14:13:40

Low energy
Low Channel

Low Channel, Band Edge


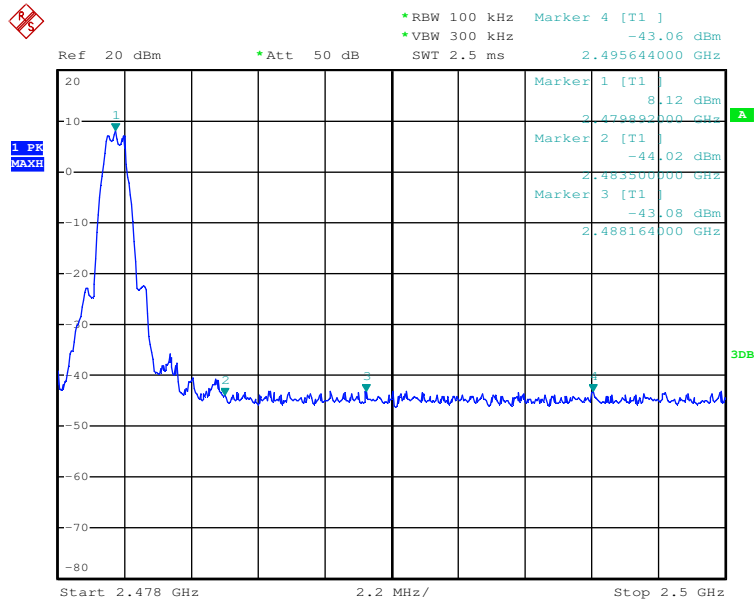
Middle Channel


Date: 7.JAN.2015 16:09:17

High Channel


Date: 7.JAN.2015 16:09:52

High Channel, Band Edge



Date: 7.JAN.2015 15:28:06

5.1.6 Spurious Emission

RESULT:**Passed**

Date of testing	:	2015-01-23 to 2015-01-26
Test standard	:	FCC part 15.247(d) FCC Part 15.205
Basic standard	:	ANSI C63.4: 2003
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

Remark:

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test setup photos.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For details refer to Appendix 1.

5.1.7 20dB Bandwidth

RESULT:
Passed

Date of testing : 2015-01-07
 Test standard : FCC Part 15.247(a)(1)
 Basic standard : ANSI C63.4: 2003
 Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 12: Test result of 20dB Bandwidth, BDR mode

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (MHz)	Result
Low Channel	2402	930	/	Pass
Mid Channel	2441	922	/	Pass
High Channel	2480	930	/	Pass

Table 13: Test result of 20dB Bandwidth, EDR mode

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (MHz)	Result
Low Channel	2402	1132	/	Pass
Mid Channel	2441	1212	/	Pass
High Channel	2480	1132	/	Pass

5.1.8 Frequency Separation

RESULT:
Passed

Date of testing : 2015-01-07
 Test standard : FCC part 15.247(a)(1)
 Basic standard : ANSI C63.4: 2003
 Limit : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 14: Test result of Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (MHz)	Limit (kHz)	Result
Low Channel	2402	1	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2403			
Mid Channel	2441	1	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2442			
High Channel	2480	1	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2479			

5.1.9 Number of hopping frequency**RESULT:****Passed**

Date of testing : 2015-01-07
Test standard : FCC part 15.247(a)(1)(iii)
Basic standard : ANSI C63.4: 2003
Limits : ≥ 15 non-overlapping channels
Kind of test site : Shield room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 15: Test result of Number of hopping frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
<u>2400</u> to <u>2483.5</u> MHz	79	≥ 15	Pass

5.1.10 Time of Occupancy

RESULT:
Passed

Date of testing : 2015-01-07
 Test standard : FCC part 15.247(a)(1)(iii)
 Basic standard : ANSI C63.4: 2003
 Limits : 0.4s
 Kind of test site : Shield room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 16: Test result of Time of Occupancy, BDR mode

Channel	Data Mode	Pulse width (ms)	Measured Dwell time (s)	Limit (s)	Result
Low Channel	DH1	0.44	0.141	0.4	Pass
	DH3	1.73	0.277	0.4	Pass
	DH5	3.0	0.320	0.4	Pass
Mid Channel	DH1	0.45	0.144	0.4	Pass
	DH3	1.71	0.274	0.4	Pass
	DH5	3.0	0.320	0.4	Pass
High Channel	DH1	0.45	0.144	0.4	Pass
	DH3	1.71	0.274	0.4	Pass
	DH5	3.0	0.320	0.4	Pass

Table 17: Test result of Time of Occupancy, EDR mode

Channel	Data Mode	Pulse width (ms)	Measured Dwell time (s)	Limit (s)	Result
Low Channel	DH1	0.45	0.144	0.4	Pass
	DH3	1.72	0.275	0.4	Pass
	DH5	3.0	0.320	0.4	Pass
Mid Channel	DH1	0.45	0.144	0.4	Pass
	DH3	1.72	0.275	0.4	Pass
	DH5	2.98	0.318	0.4	Pass
High Channel	DH1	0.45	0.144	0.4	Pass
	DH3	1.72	0.275	0.4	Pass
	DH5	2.98	0.318	0.4	Pass

Note:

$$\text{Dwell time} = \text{Pulse width} \times (\text{Hopping rate} / \text{Number of channels}) \times \text{Period}$$
$$\text{Period} = 0.4 \text{ (seconds/ channel)} \times 79 \text{ (channel)} = 31.6 \text{ seconds}$$

5.1.11 Conducted emissions

RESULT:**Passed**

Date of testing	:	2015-01-26
Test standard	:	FCC Part 15.207(a)
Basic standard	:	ANSI C63.4: 2003
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a)
Kind of test site	:	Shield room

Test setup

Input Voltage	:	AC 120V, 60Hz via AC input of PC
Operation Mode	:	C
Earthing	:	Not connected
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

For details refer to Appendix 1.

5.1.12 Radiated Emission

RESULT:**Passed**

Date of testing	:	2015-01-23
Test standard	:	FCC Part 15 Per Section 15.209(a)
Frequency range	:	30 - 6000MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	AC 120V, 60Hz via AC input of PC
Operation mode	:	C
Earthing	:	Not connected
Ambient temperature	:	Refer to Appendix 1
Relative humidity	:	Refer to Appendix 1
Atmospheric pressure	:	Refer to Appendix 1

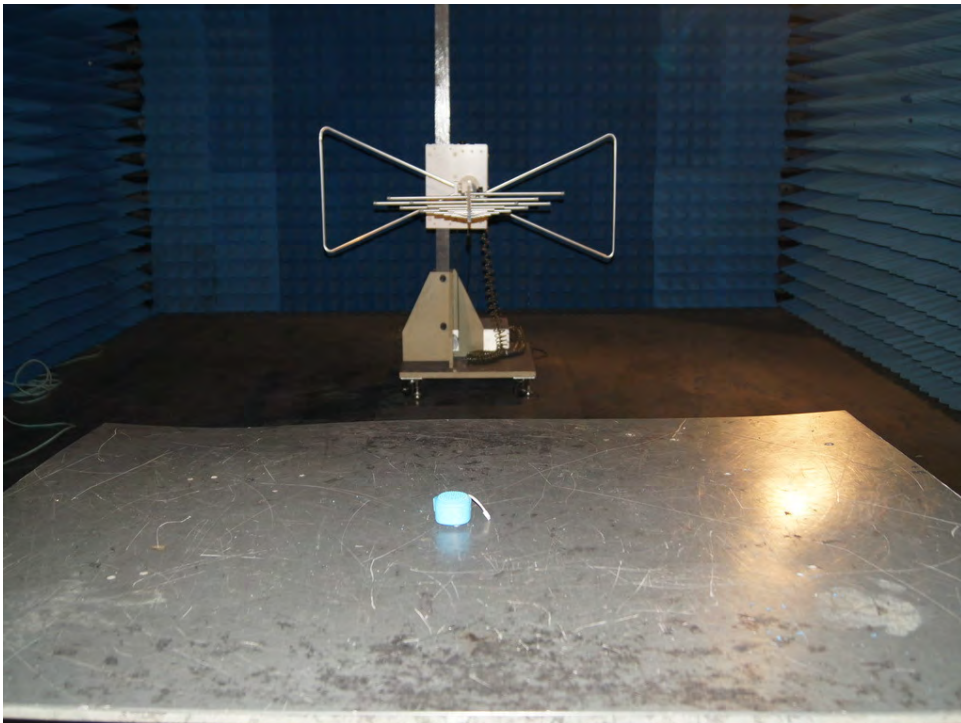
Test data refer to Appendix 1.

6. Photographs of the Test Set-Up

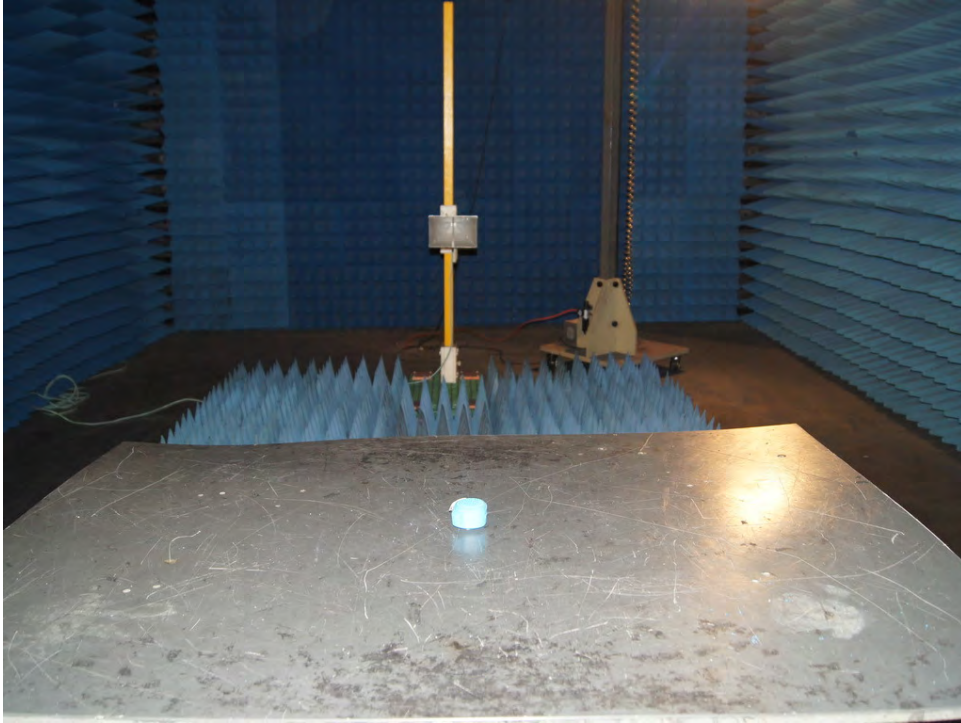
Photograph 1: Set-up for Spurious Emissions (9kHz-30MHz)



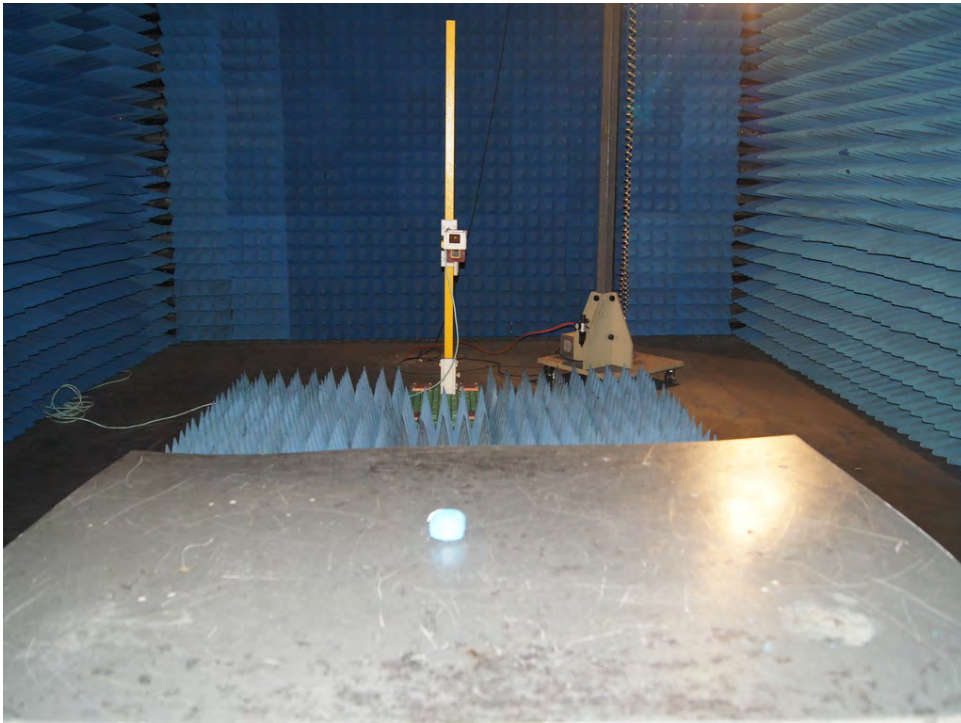
Photograph 2: Set-up for Spurious Emissions (30MHz-1GHz)



Photograph 3: Set-up for Spurious Emissions (1GHz-18GHz)



Photograph 4: Set-up for Spurious Emissions (18GHz-26GHz)



Photograph 5: Set-up for Conducted Emissions



Photograph 6: Set-up for Radiated Emissions, below 1GHz



Photograph 7: Set-up for Radiated Emissions, above 1GHz



7. List of Tables

Table 1: List of Test and Measurement Equipment	5
Table 2: Rating of EUT	7
Table 3: Technical Specification of Bluetooth (BDR & EDR)	7
Table 4: RF channel and frequency of Bluetooth (BDR & EDR mode)	8
Table 5: Technical Specification of Bluetooth (low energy)	8
Table 6: RF channel and frequency of Bluetooth low energy	9
Table 7: Test result of Peak Output Power, BR	14
Table 8: Test result of Peak Output Power, EDR	14
Table 9: Test result of Peak Output Power, low energy	14
Table 10: Test result of Power Spectral Density, low energy	15
Table 11: Test result of 6dB Bandwidth, low energy	16
Table 12: Test result of 20dB Bandwidth, BDR mode	27
Table 13: Test result of 20dB Bandwidth, EDR mode	27
Table 14: Test result of Frequency Separation	28
Table 15: Test result of Number of hopping frequency	29
Table 16: Test result of Time of Occupancy, BDR mode	30
Table 17: Test result of Time of Occupancy, EDR mode	31

8. List of Photographs

Photograph 1: Set-up for Spurious Emissions (9kHz-30MHz)	34
Photograph 2: Set-up for Spurious Emissions (30MHz-1GHz)	34
Photograph 3: Set-up for Spurious Emissions (1GHz-18GHz)	35
Photograph 4: Set-up for Spurious Emissions (18GHz-26GHz)	35
Photograph 5: Set-up for Conducted Emissions	36
Photograph 6: Set-up for Radiated Emissions, below 1GHz	36
Photograph 7: Set-up for Radiated Emissions, above 1GHz	37

List of Figures

Figure 1: Test figure of spurious emissions, mode A.1, Horizontal polarity (9kHz – 30MHz)	3
Figure 2: Test figure of spurious emissions, mode A.1, Vertical polarity (9kHz – 30MHz)	3
Figure 3: Test figure of spurious emissions, mode A.1, Horizontal polarity (30MHz – 1GHz)	4
Figure 4: Test figure of spurious emissions, mode A.1, Vertical polarity (30MHz – 1GHz)	5
Figure 5: Test figure of spurious emissions, mode A.1, Horizontal polarity (1GHz – 18GHz)	6
Figure 6: Test figure of spurious emissions, mode A.1, Vertical polarity (1GHz – 18GHz)	7
Figure 7: Test figure of spurious emissions, mode A.1, Horizontal polarity (18GHz – 25GHz)	8
Figure 8: Test figure of spurious emissions, mode A.1, Vertical polarity (18GHz – 25GHz)	9
Figure 9: Test figure of spurious emissions, mode A.2, Horizontal polarity (9kHz – 30MHz)	10
Figure 10: Test figure of spurious emissions, mode A.2, Vertical polarity (9kHz – 30MHz)	10
Figure 11: Test figure of spurious emissions, mode A.2, Horizontal polarity (30MHz – 1GHz)	11
Figure 12: Test figure of spurious emissions, mode A.2, Vertical polarity (30MHz – 1GHz)	12
Figure 13: Test figure of spurious emissions, mode A.2, Horizontal polarity (1GHz – 18GHz)	13
Figure 14: Test figure of spurious emissions, mode A.2, Vertical polarity (1GHz – 18GHz)	14
Figure 15: Test figure of spurious emissions, mode A.2, Horizontal polarity (18GHz – 25GHz)	15
Figure 16: Test figure of spurious emissions, mode A.2, Vertical polarity (18GHz – 25GHz)	16
Figure 17: Test figure of spurious emissions, mode A.3, Horizontal polarity (9kHz – 30MHz)	17
Figure 18: Test figure of spurious emissions, mode A.3, Vertical polarity (9kHz – 30MHz)	17
Figure 19: Test figure of spurious emissions, mode A.3, Horizontal polarity (30MHz – 1GHz)	18
Figure 20: Test figure of spurious emissions, mode A.3, Vertical polarity (30MHz – 1GHz)	19
Figure 21: Test figure of spurious emissions, mode A.3, Horizontal polarity (1GHz – 18GHz)	20
Figure 22: Test figure of spurious emissions, mode A.3, Vertical polarity (1GHz – 18GHz)	21
Figure 23: Test figure of spurious emissions, mode A.3, Horizontal polarity (18GHz – 25GHz)	22
Figure 24: Test figure of spurious emissions, mode A.3, Vertical polarity (18GHz – 25GHz)	23
Figure 1: Test figure of spurious emissions, mode B.1, Horizontal polarity (9kHz – 30MHz)	24
Figure 2: Test figure of spurious emissions, mode B.1, Vertical polarity (9kHz – 30MHz)	24
Figure 3: Test figure of spurious emissions, mode B.1, Horizontal polarity (30MHz – 1GHz)	25
Figure 4: Test figure of spurious emissions, mode B.1, Vertical polarity (30MHz – 1GHz)	26
Figure 5: Test figure of spurious emissions, mode B.1, Horizontal polarity (1GHz – 18GHz)	27
Figure 6: Test figure of spurious emissions, mode B.1, Vertical polarity (1GHz – 18GHz)	28
Figure 7: Test figure of spurious emissions, mode B.1, Horizontal polarity (18GHz – 25GHz)	29
Figure 8: Test figure of spurious emissions, mode B.1, Vertical polarity (18GHz – 25GHz)	30
Figure 9: Test figure of spurious emissions, mode B.2, Horizontal polarity (9kHz – 30MHz)	31
Figure 10: Test figure of spurious emissions, mode B.2, Vertical polarity (9kHz – 30MHz)	31
Figure 11: Test figure of spurious emissions, mode B.2, Horizontal polarity (30MHz – 1GHz)	32
Figure 12: Test figure of spurious emissions, mode B.2, Vertical polarity (30MHz – 1GHz)	33
Figure 13: Test figure of spurious emissions, mode B.2, Horizontal polarity (1GHz – 18GHz)	34
Figure 14: Test figure of spurious emissions, mode B.2, Vertical polarity (1GHz – 18GHz)	35
Figure 15: Test figure of spurious emissions, mode B.2, Horizontal polarity (18GHz – 25GHz)	36
Figure 16: Test figure of spurious emissions, mode B.2, Vertical polarity (18GHz – 25GHz)	37
Figure 17: Test figure of spurious emissions, mode B.3, Horizontal polarity (9kHz – 30MHz)	38
Figure 18: Test figure of spurious emissions, mode B.3, Vertical polarity (9kHz – 30MHz)	38
Figure 19: Test figure of spurious emissions, mode B.3, Horizontal polarity (30MHz – 1GHz)	39
Figure 20: Test figure of spurious emissions, mode B.3, Vertical polarity (30MHz – 1GHz)	40
Figure 21: Test figure of spurious emissions, mode B.3, Horizontal polarity (1GHz – 18GHz)	41
Figure 22: Test figure of spurious emissions, mode B.3, Vertical polarity (1GHz – 18GHz)	42
Figure 23: Test figure of spurious emissions, mode B.3, Horizontal polarity (18GHz – 25GHz)	43
Figure 24: Test figure of spurious emissions, mode B.3, Vertical polarity (18GHz – 25GHz)	44
Figure 65: Test figure of Radiated emissions in restricted bands, Mode A.1, Horizontal	45
Figure 66: Test figure of Radiated emissions in restricted bands, Mode A.1, Vertical	46
Figure 67: Test figure of Radiated emissions in restricted bands, Mode A.3, Horizontal	47
Figure 68: Test figure of Radiated emissions in restricted bands, Mode A.3, Vertical	48

Figure 25: Test figure of Radiated emissions in restricted bands, Mode B.1, Horizontal	49
Figure 26: Test figure of Radiated emissions in restricted bands, Mode B.1, Vertical.....	50
Figure 27: Test figure of Radiated emissions in restricted bands, Mode B.3, Horizontal	51
Figure 28: Test figure of Radiated emissions in restricted bands, Mode B.3, Vertical.....	52
Figure 29: Test figure of Conducted emissions, model NS-CSPBT02, Mode C, line live.....	53
Figure 30: Test figure of Conducted emissions, model NS-CSPBT02, Mode C, line neutral	54
Figure 29: Test figure of Conducted emissions, model NS-CSPBT03, Mode C, line live.....	55
Figure 30: Test figure of Conducted emissions, model NS-CSPBT03, Mode C, line neutral	56
Figure 31: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Below 1GHz, Horizontal.....	57
Figure 32: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Below 1GHz, Vertical.....	58
Figure 33: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Above 1GHz, Horizontal.....	59
Figure 34: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Above 1GHz, Vertical.....	60
Figure 31: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Below 1GHz, Horizontal.....	61
Figure 32: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Below 1GHz, Vertical.....	62
Figure 33: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Above 1GHz, Horizontal.....	63
Figure 34: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Above 1GHz, Vertical.....	64

Figure 1: Test figure of spurious emissions, mode A.1, Horizontal polarity (9kHz – 30MHz)

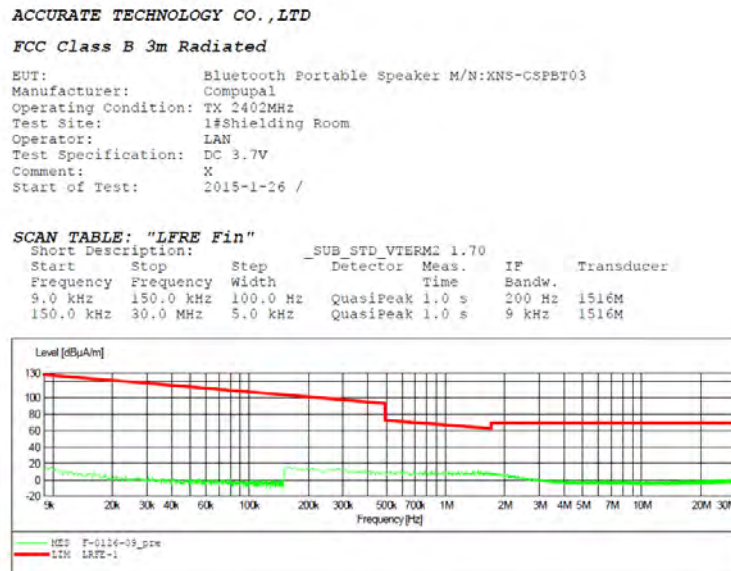


Figure 2: Test figure of spurious emissions, mode A.1, Vertical polarity (9kHz – 30MHz)

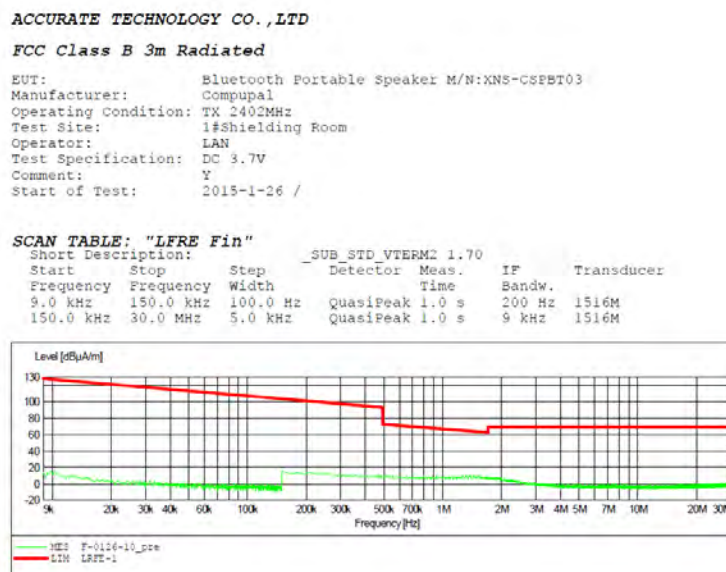


Figure 3: Test figure of spurious emissions, mode A.1, Horizontal polarity (30MHz – 1GHz)

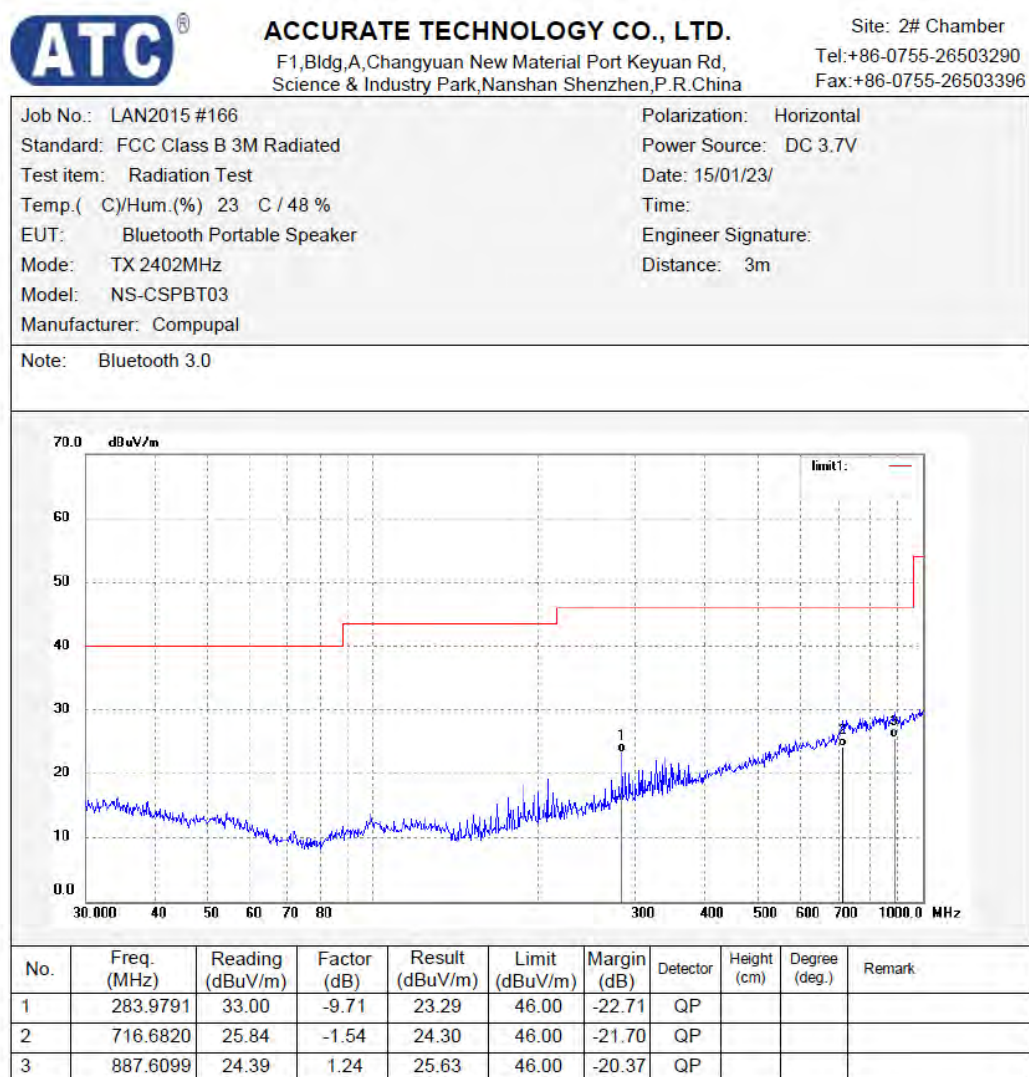


Figure 4: Test figure of spurious emissions, mode A.1, Vertical polarity (30MHz – 1GHz)

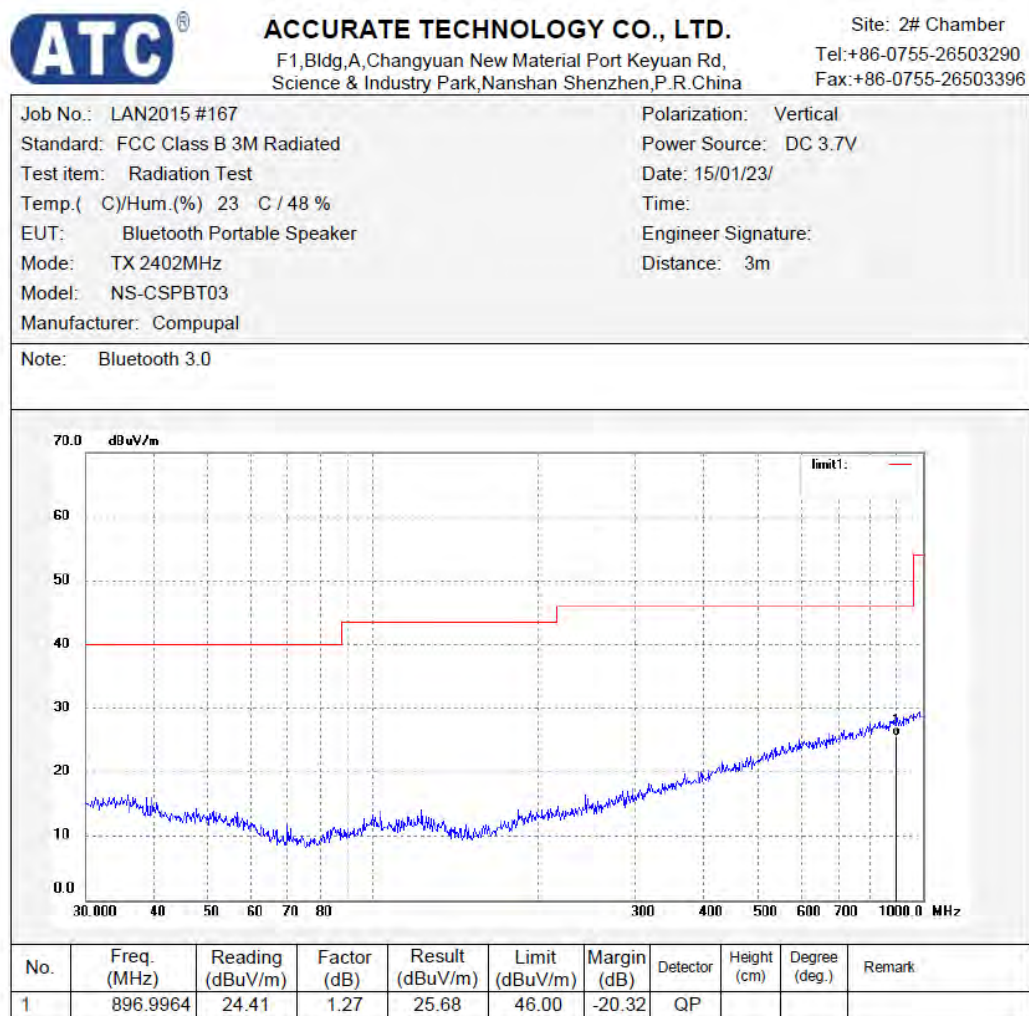


Figure 5: Test figure of spurious emissions, mode A.1, Horizontal polarity (1GHz –18GHz)

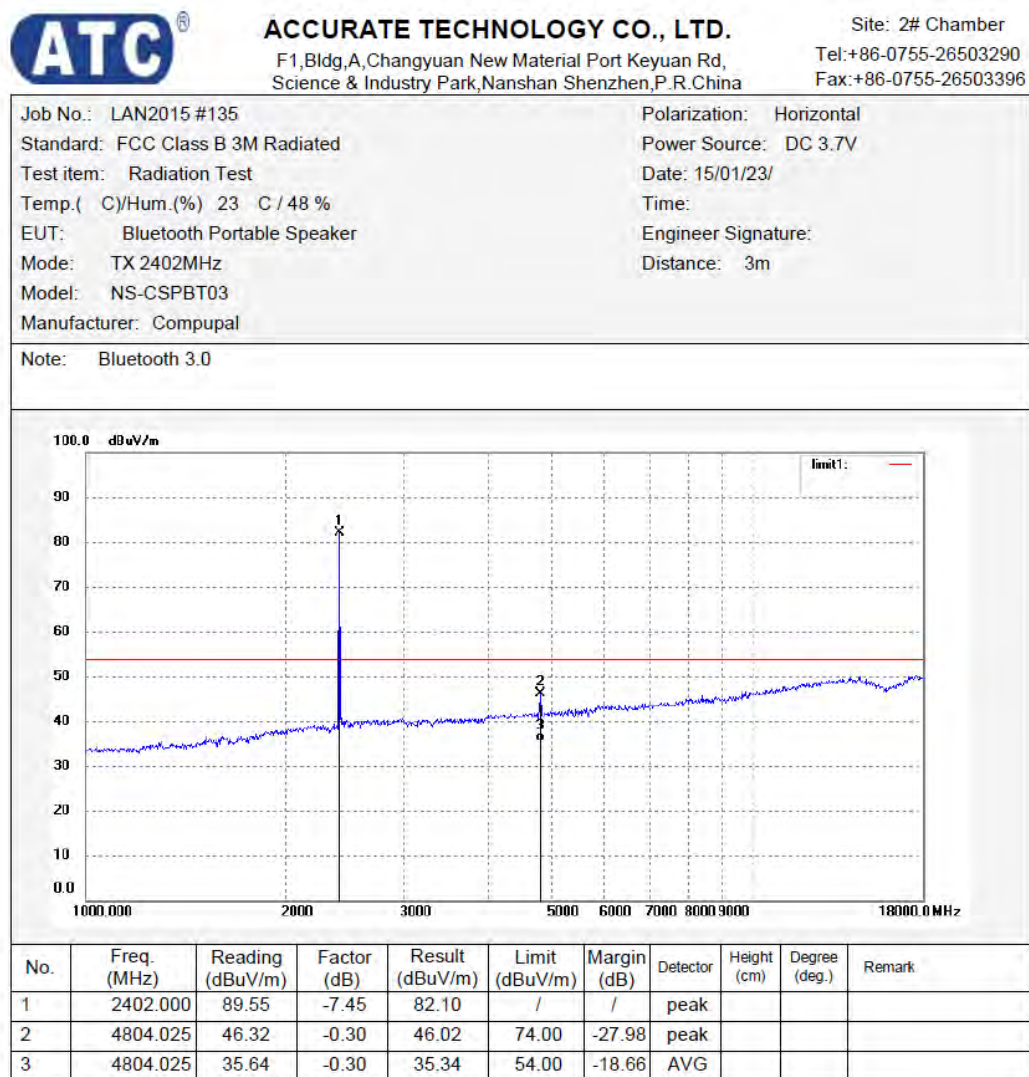


Figure 6: Test figure of spurious emissions, mode A.1, Vertical polarity (1GHz – 18GHz)

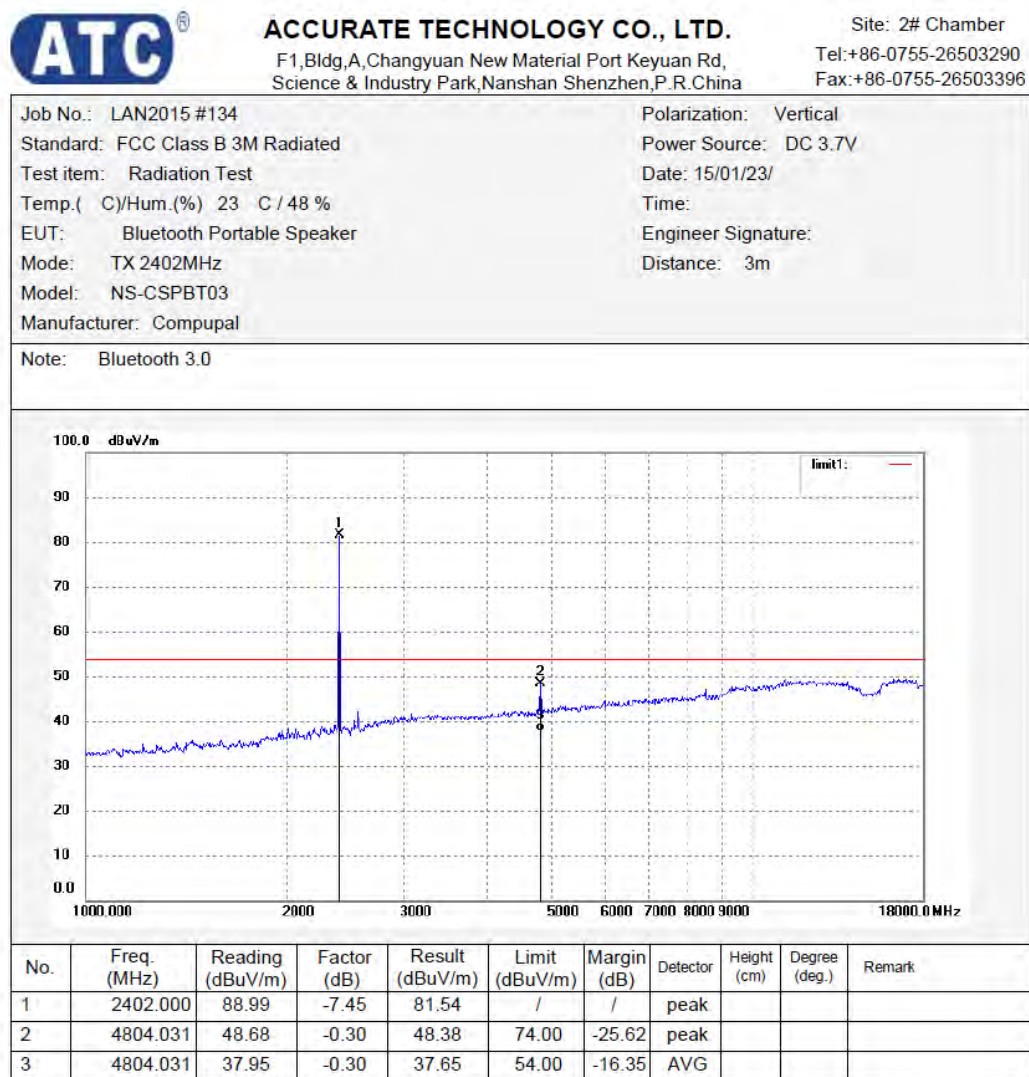


Figure 7: Test figure of spurious emissions, mode A.1, Horizontal polarity (18GHz –25GHz)

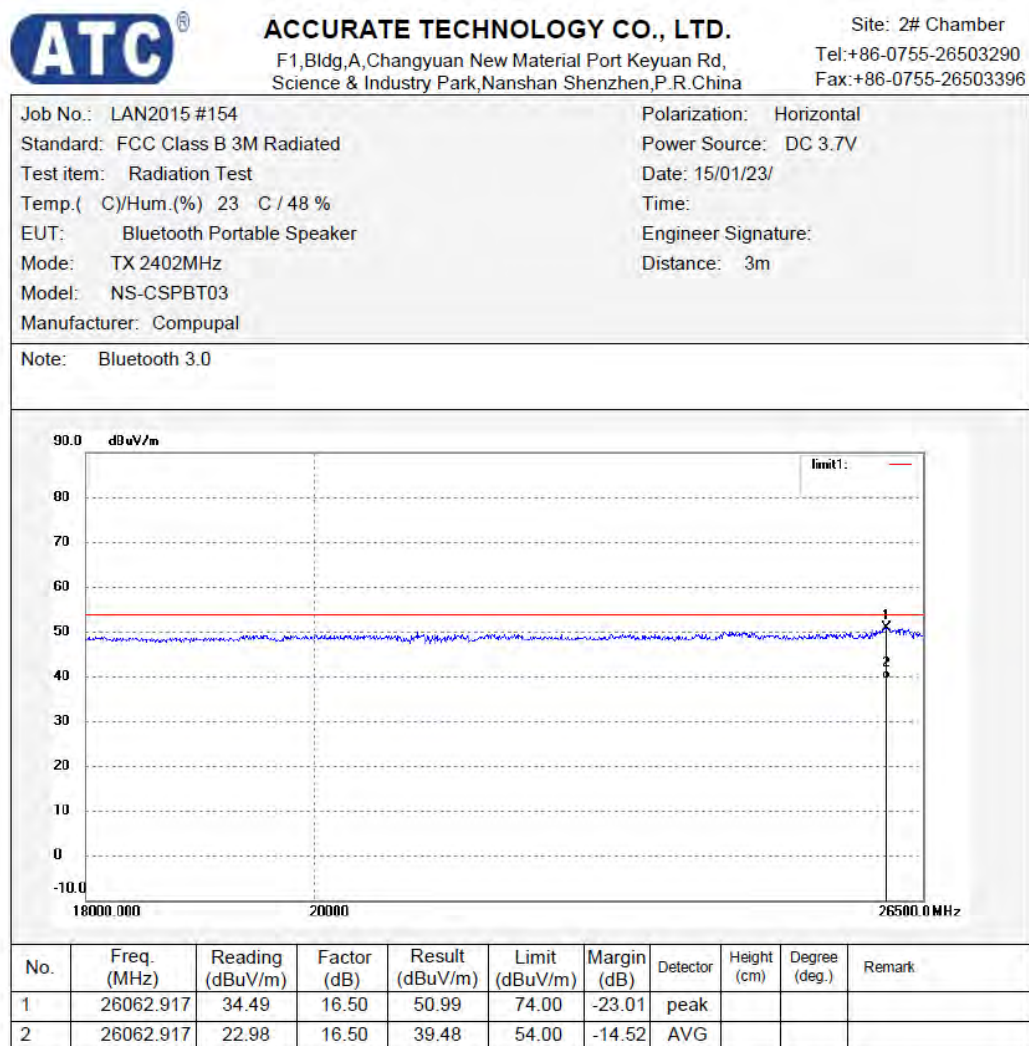


Figure 8: Test figure of spurious emissions, mode A.1, Vertical polarity (18GHz – 25GHz)

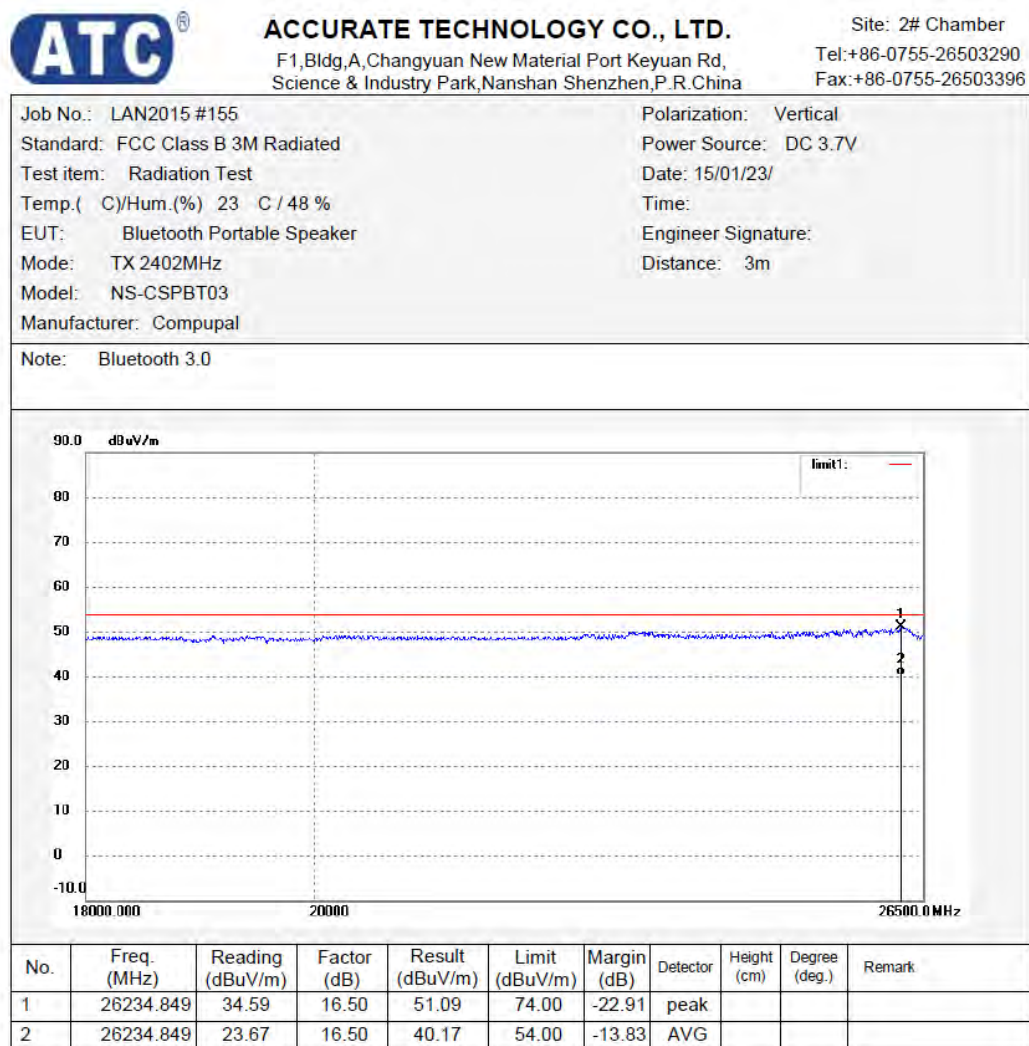


Figure 9: Test figure of spurious emissions, mode A.2, Horizontal polarity (9kHz – 30MHz)

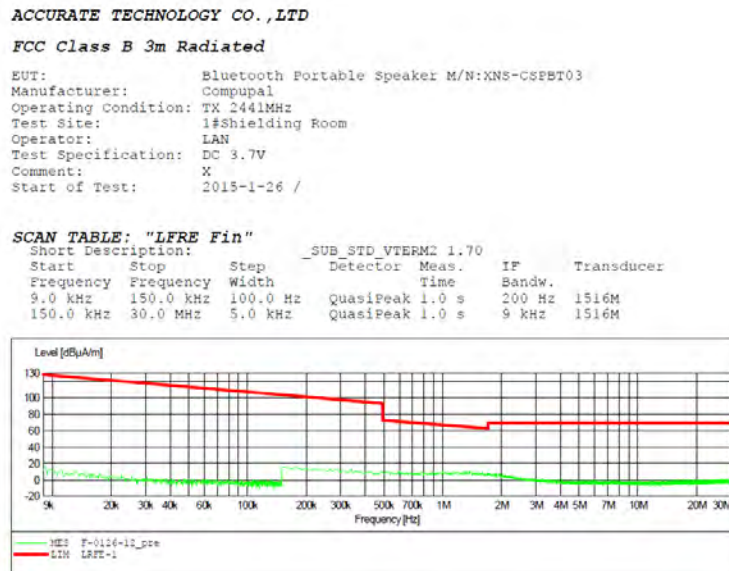


Figure 10: Test figure of spurious emissions, mode A.2, Vertical polarity (9kHz – 30MHz)

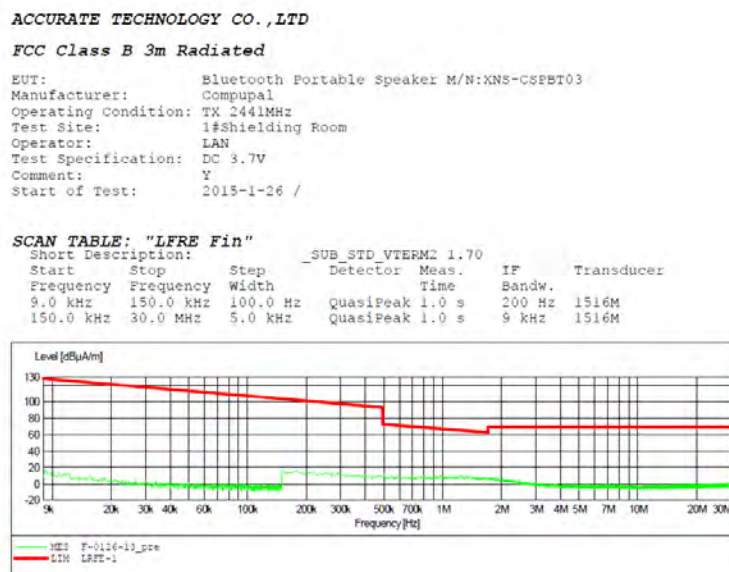


Figure 11: Test figure of spurious emissions, mode A.2, Horizontal polarity (30MHz – 1GHz)

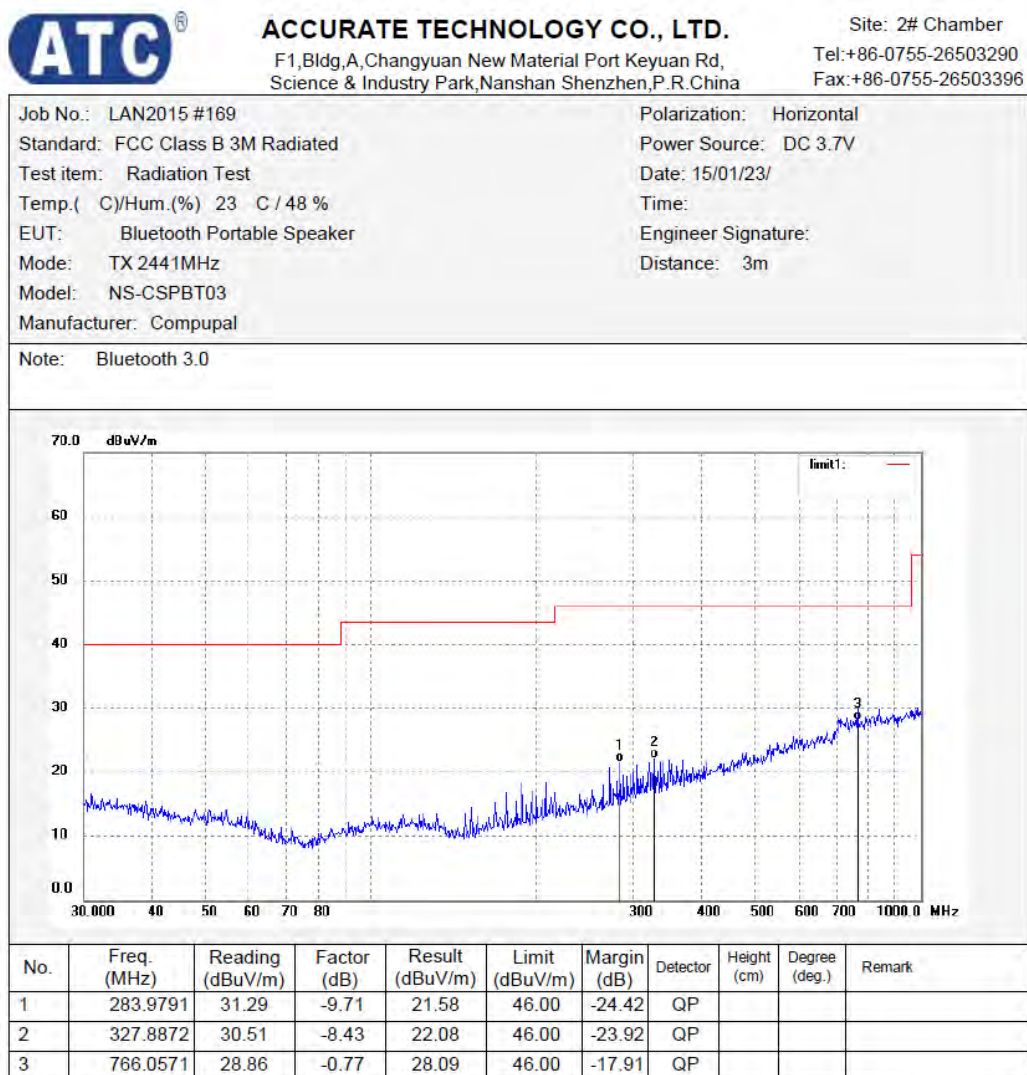


Figure 12: Test figure of spurious emissions, mode A.2, Vertical polarity (30MHz – 1GHz)

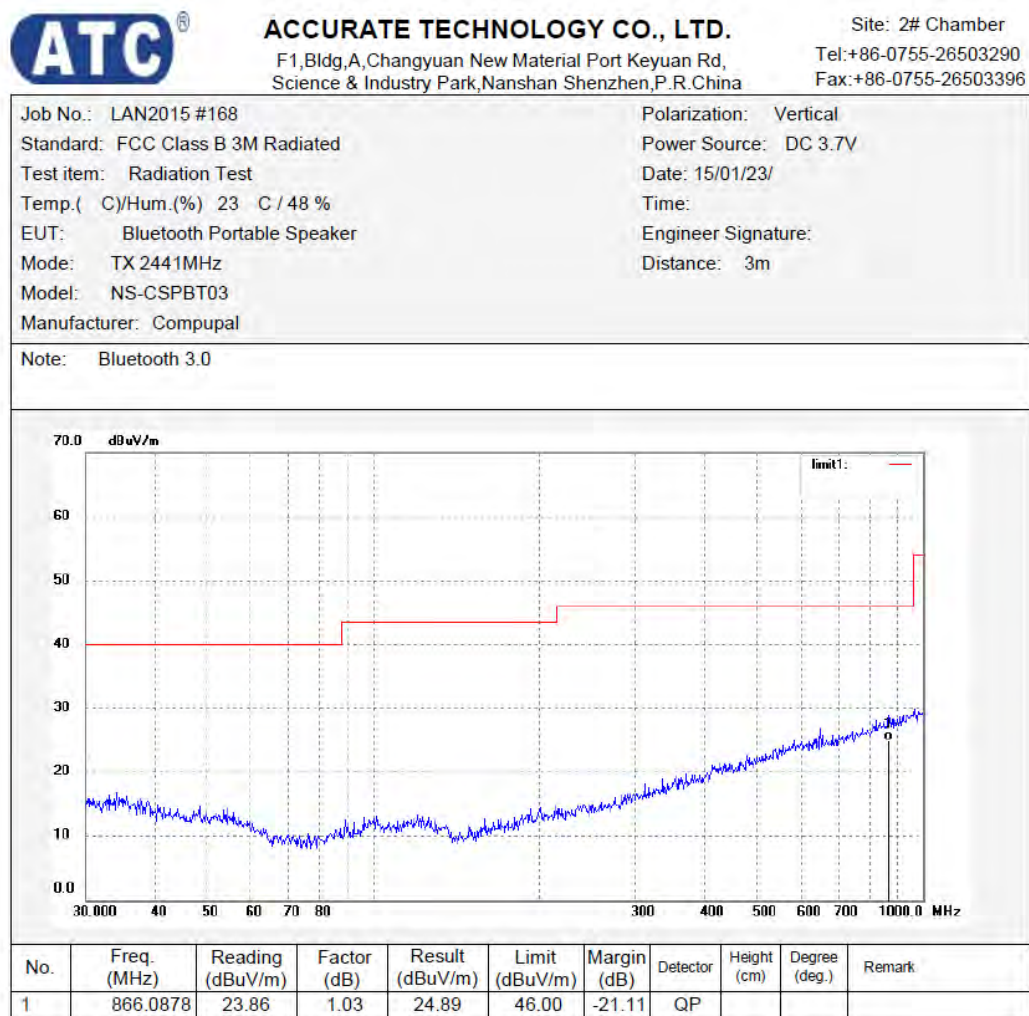


Figure 13: Test figure of spurious emissions, mode A.2, Horizontal polarity (1GHz – 18GHz)

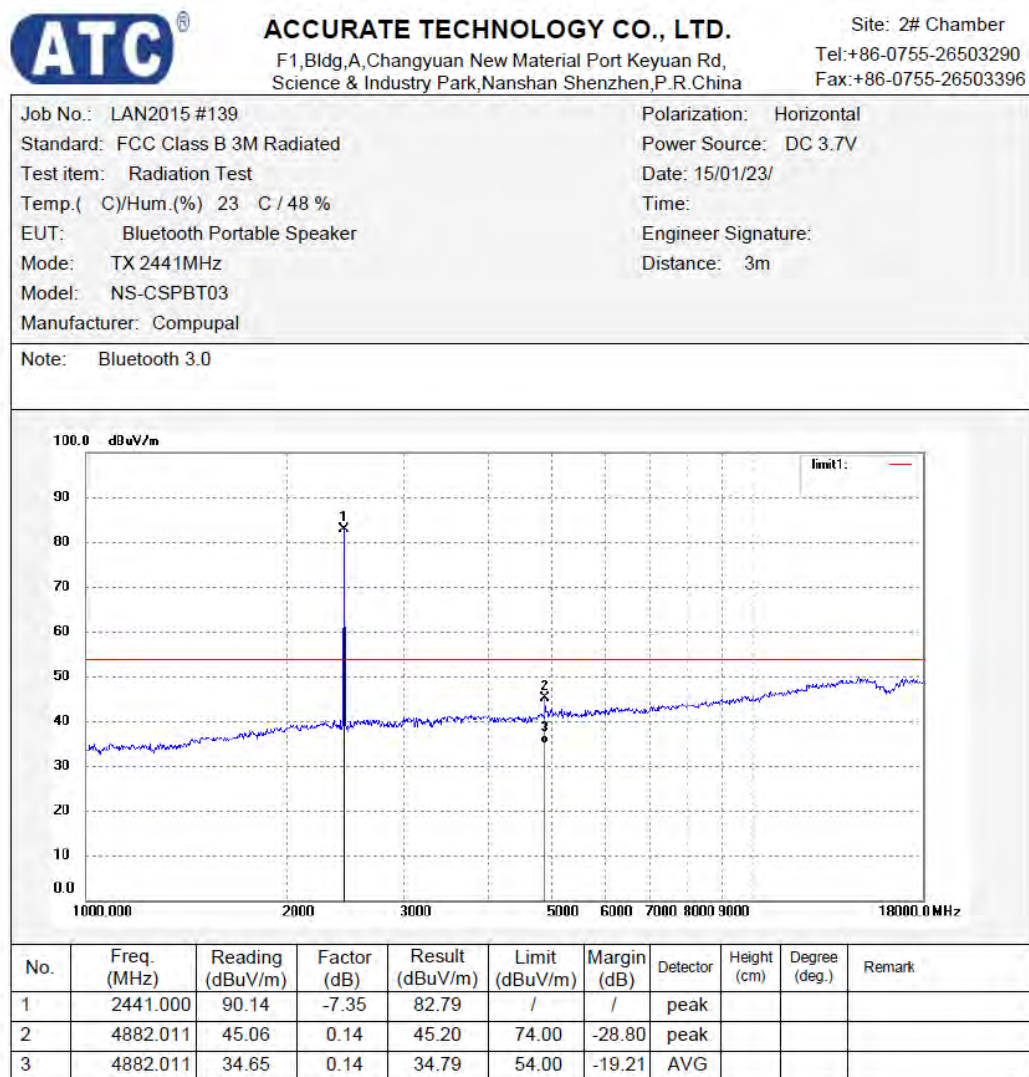


Figure 14: Test figure of spurious emissions, mode A.2, Vertical polarity (1GHz – 18GHz)

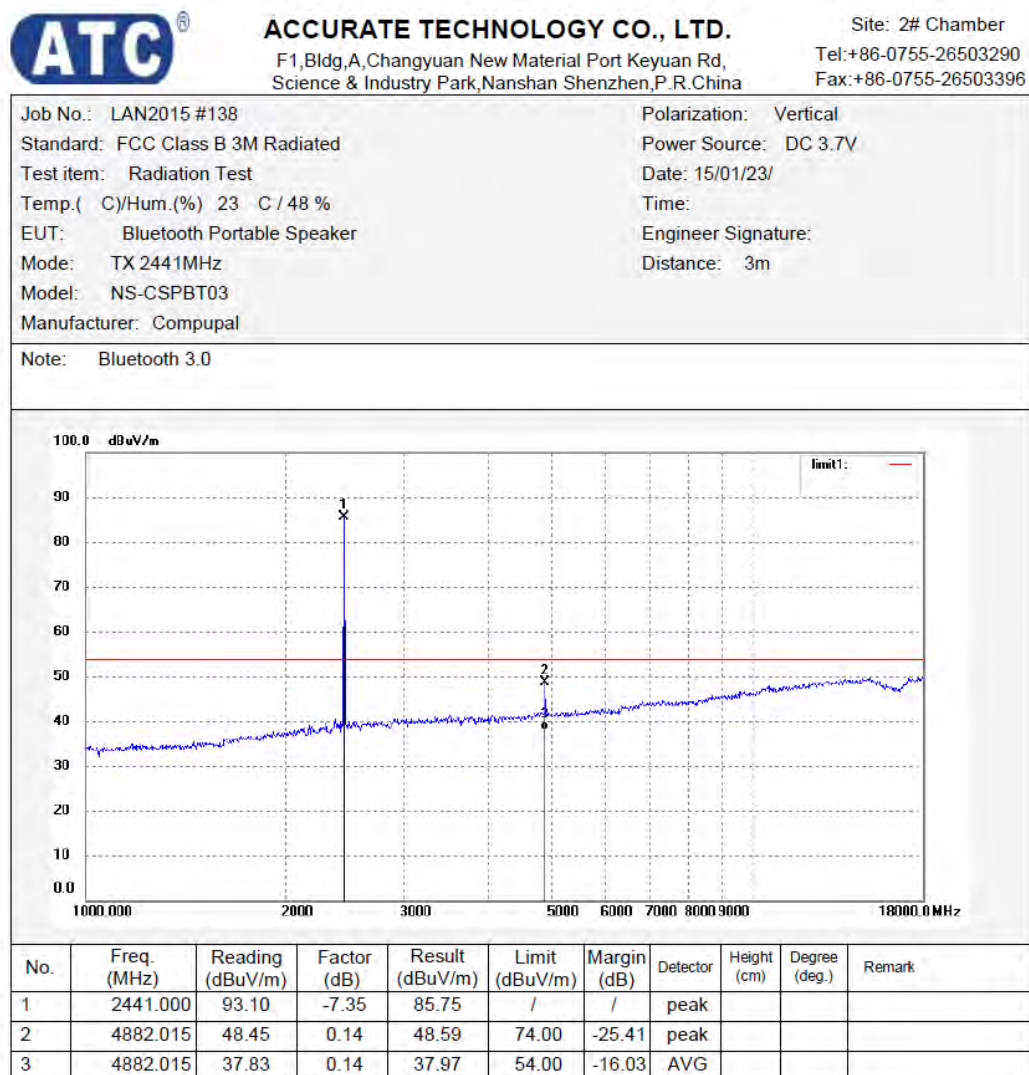


Figure 15: Test figure of spurious emissions, mode A.2, Horizontal polarity (18GHz – 25GHz)

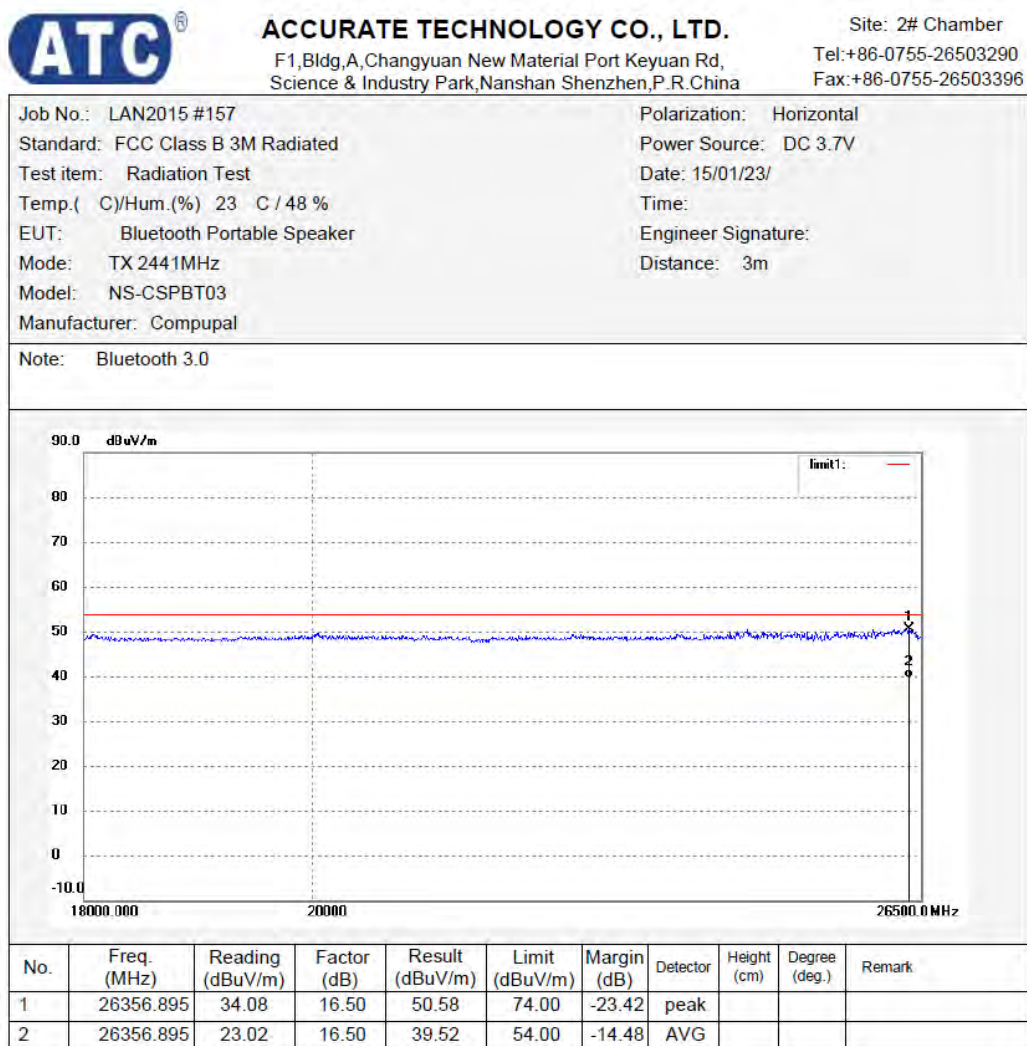


Figure 16: Test figure of spurious emissions, mode A.2, Vertical polarity (18GHz – 25GHz)

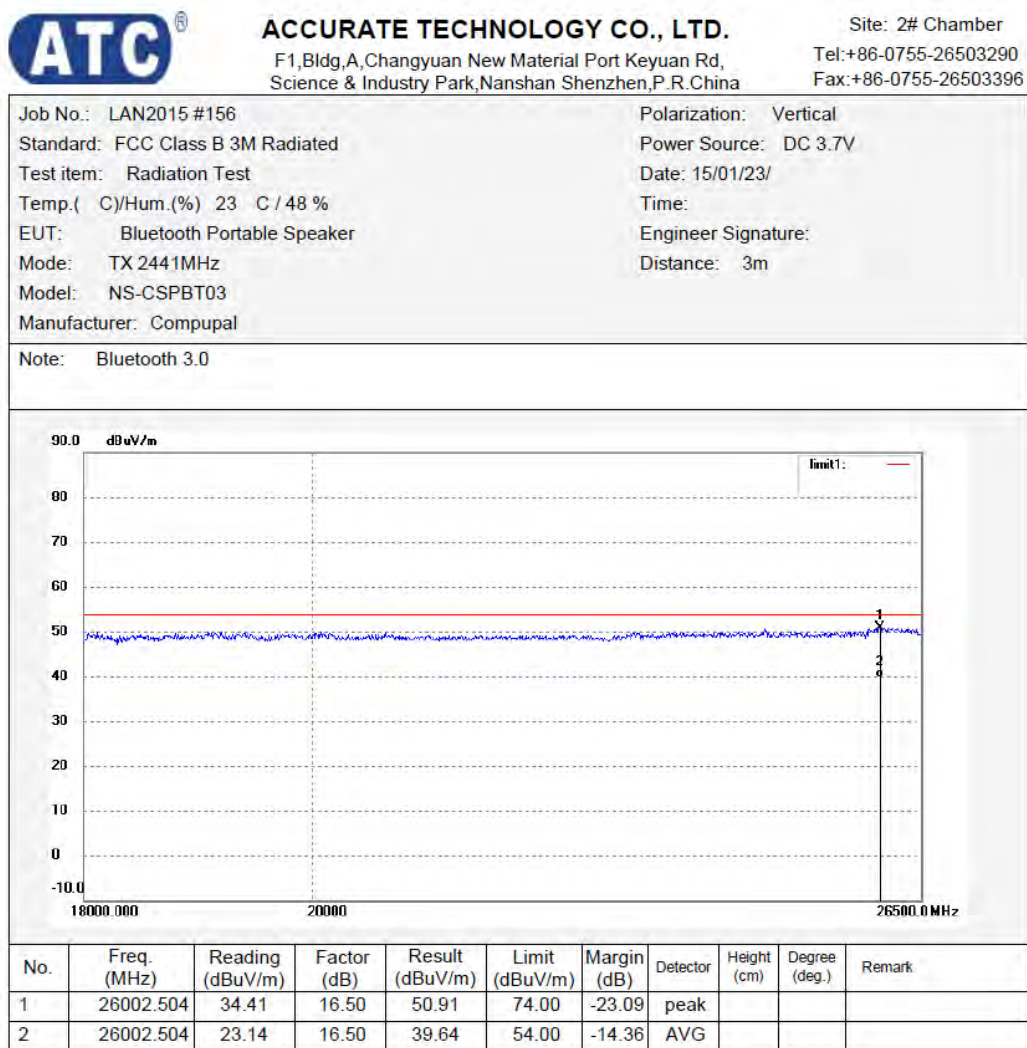


Figure 17: Test figure of spurious emissions, mode A.3, Horizontal polarity (9kHz – 30MHz)

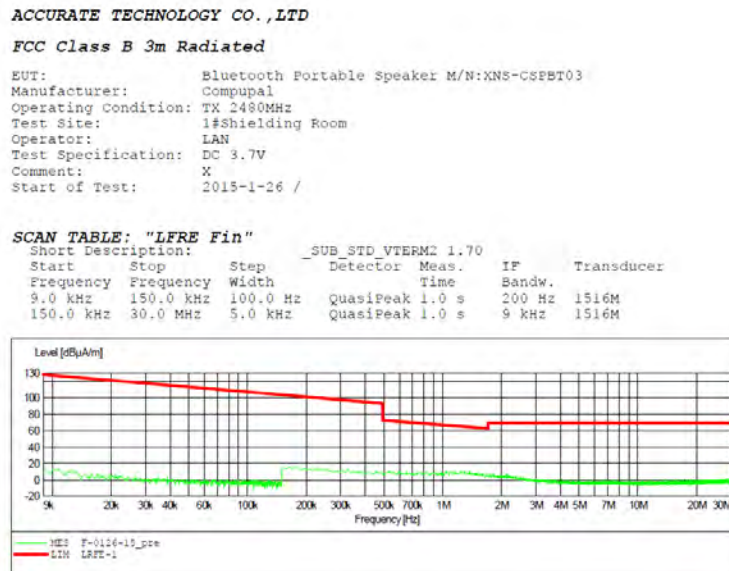


Figure 18: Test figure of spurious emissions, mode A.3, Vertical polarity (9kHz – 30MHz)

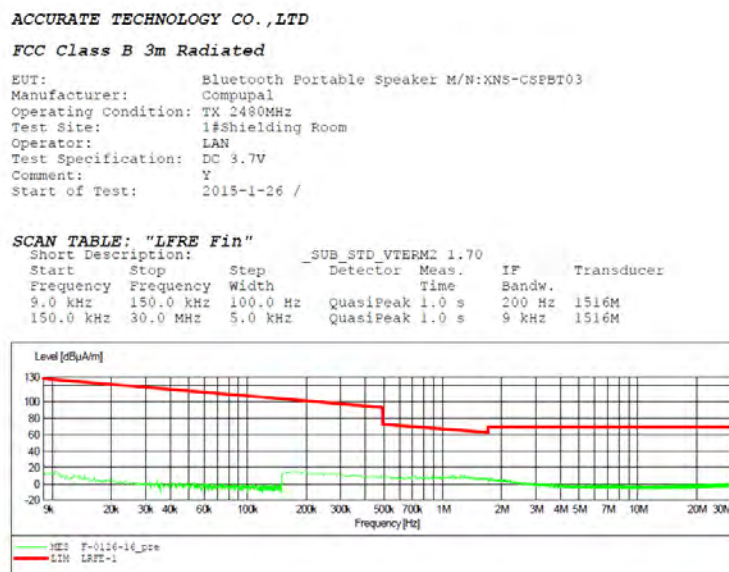


Figure 19: Test figure of spurious emissions, mode A.3, Horizontal polarity (30MHz – 1GHz)

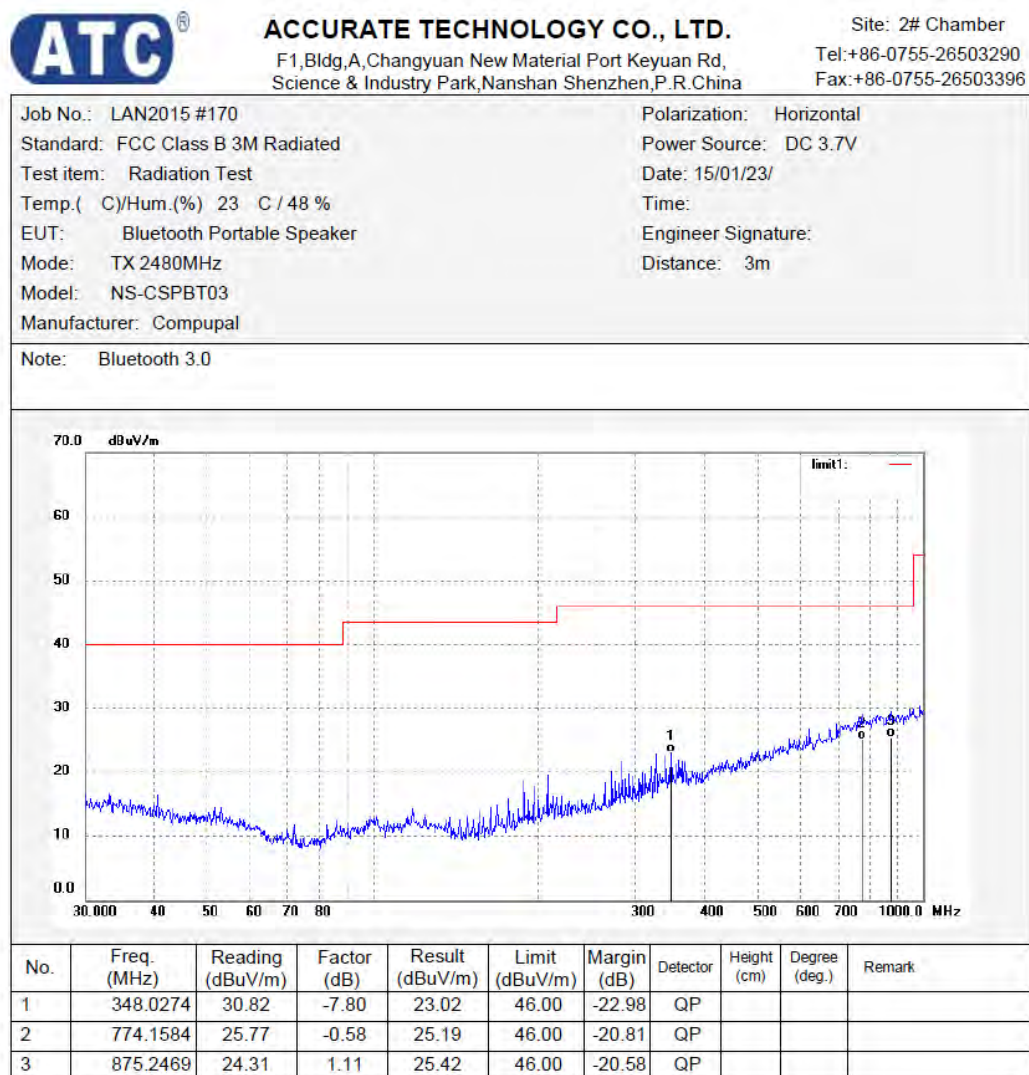


Figure 20: Test figure of spurious emissions, mode A.3, Vertical polarity (30MHz – 1GHz)

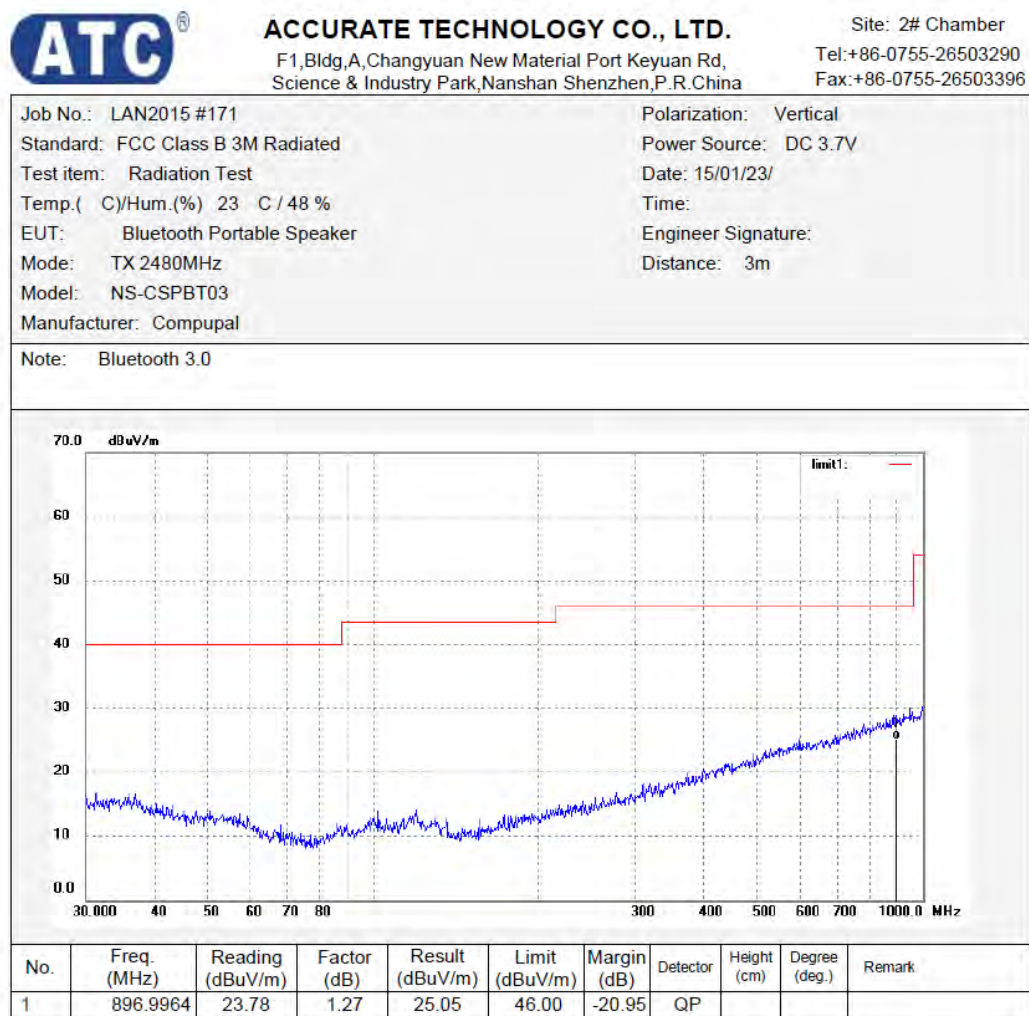


Figure 21: Test figure of spurious emissions, mode A.3, Horizontal polarity (1GHz –18GHz)

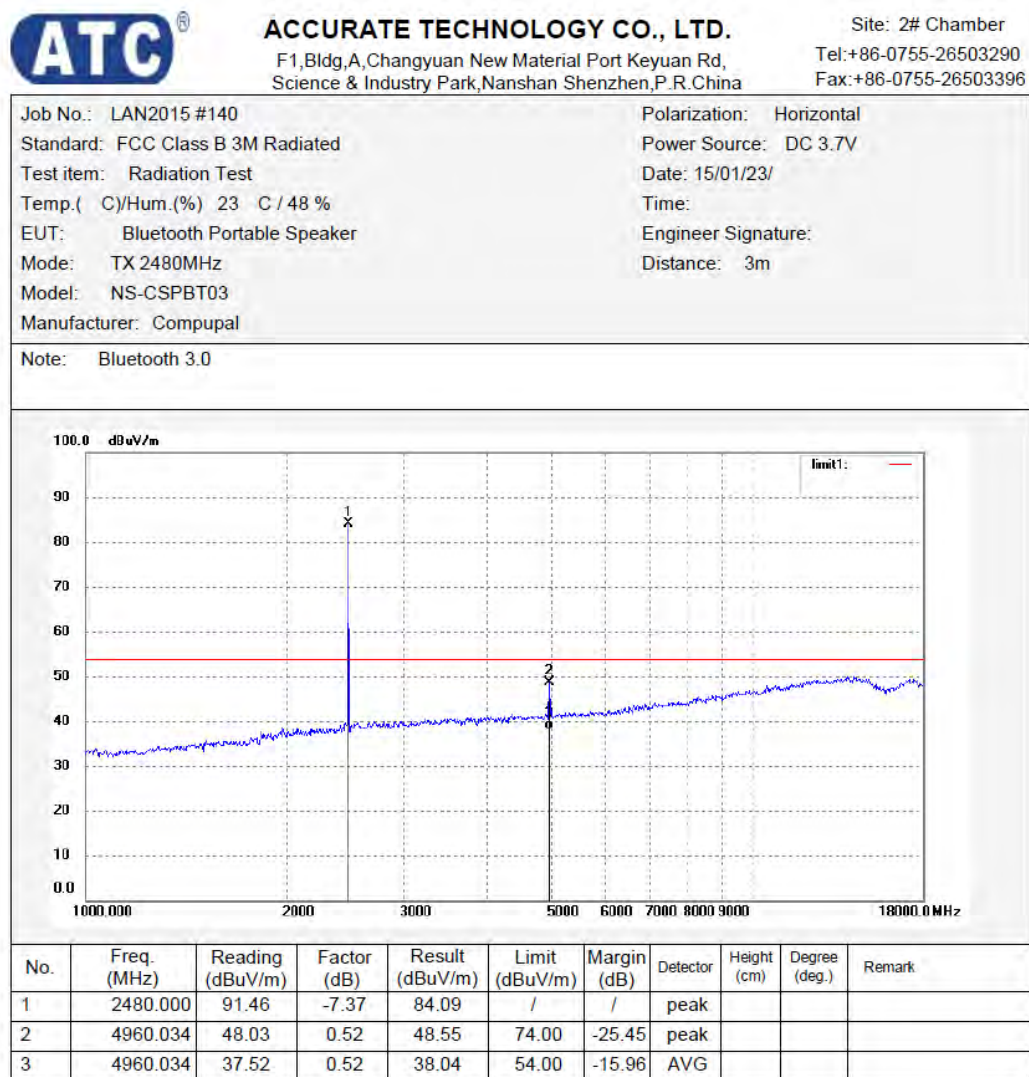


Figure 22: Test figure of spurious emissions, mode A.3, Vertical polarity (1GHz – 18GHz)

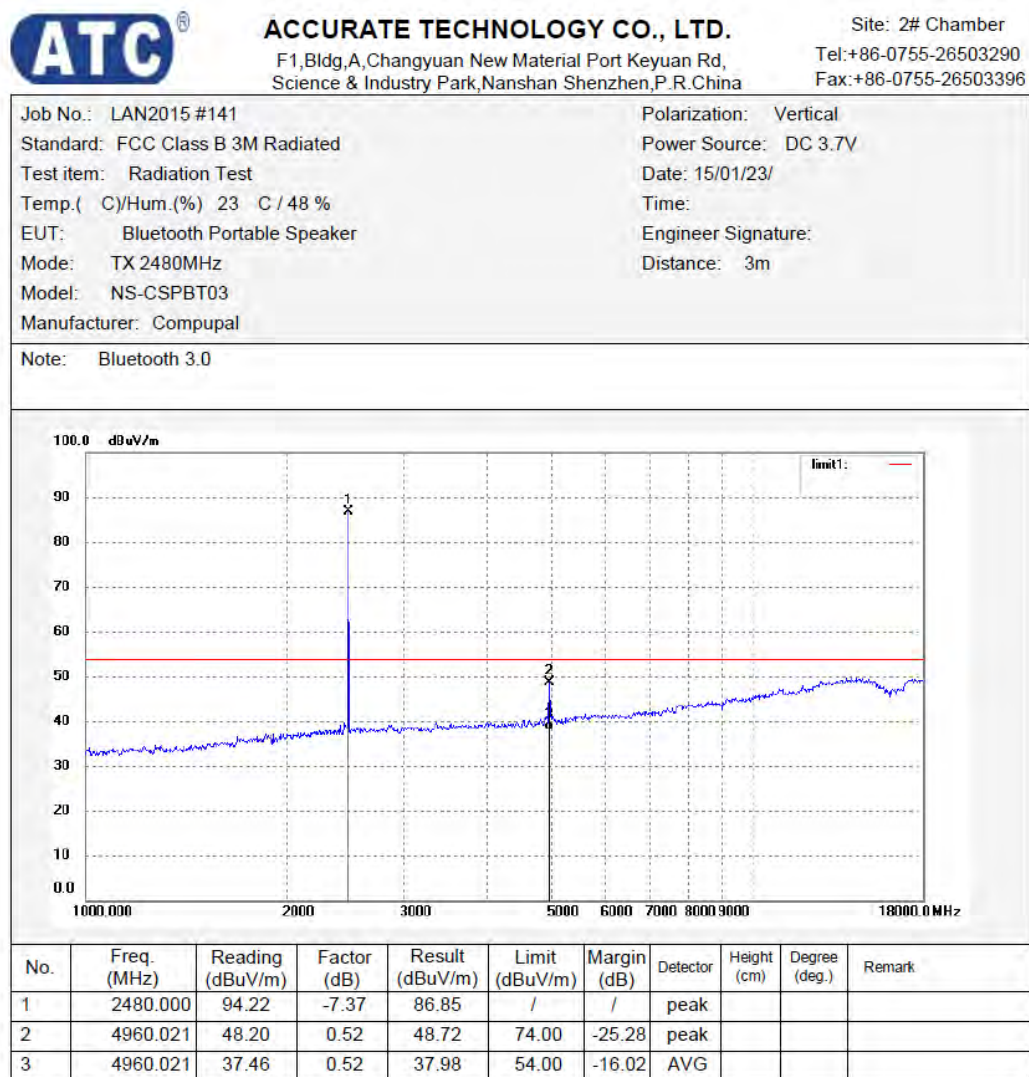


Figure 23: Test figure of spurious emissions, mode A.3, Horizontal polarity (18GHz –25GHz)

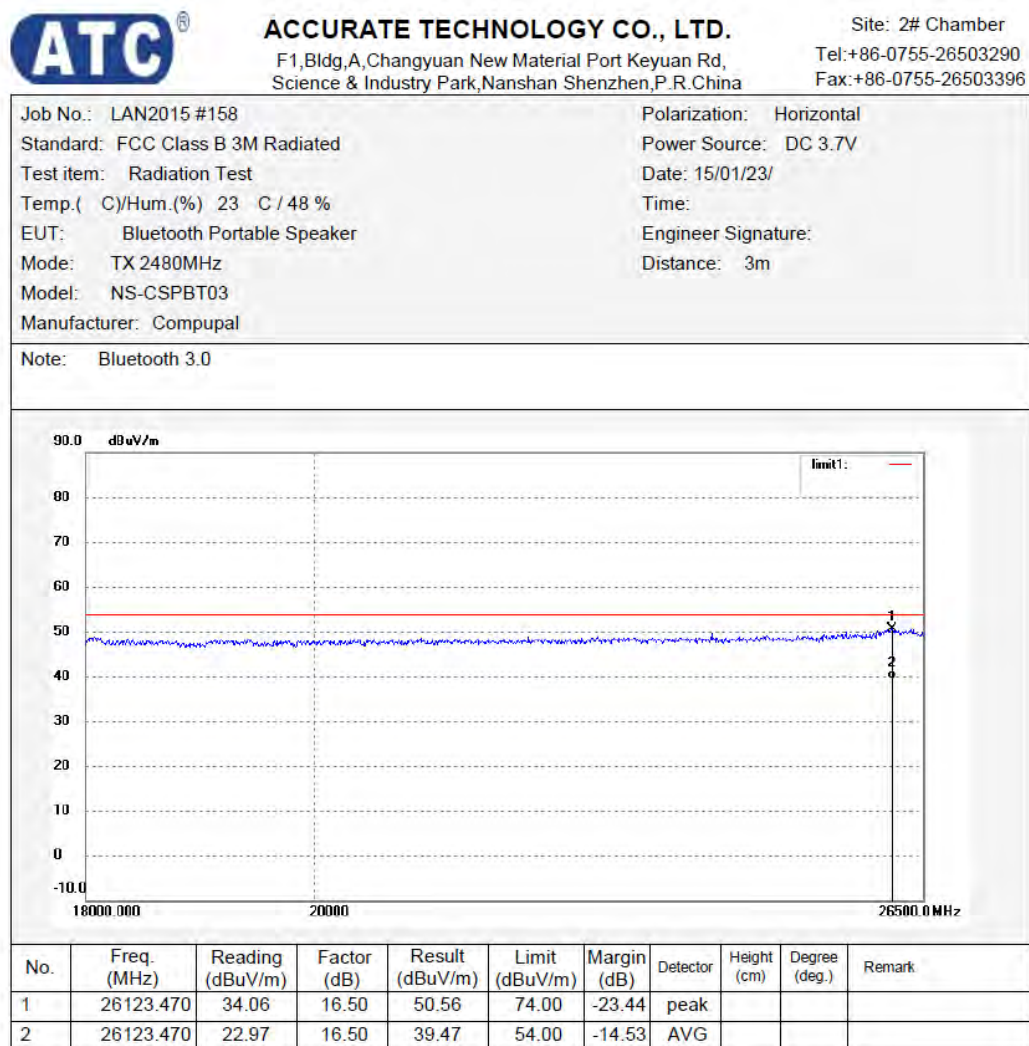


Figure 24: Test figure of spurious emissions, mode A.3, Vertical polarity (18GHz – 25GHz)

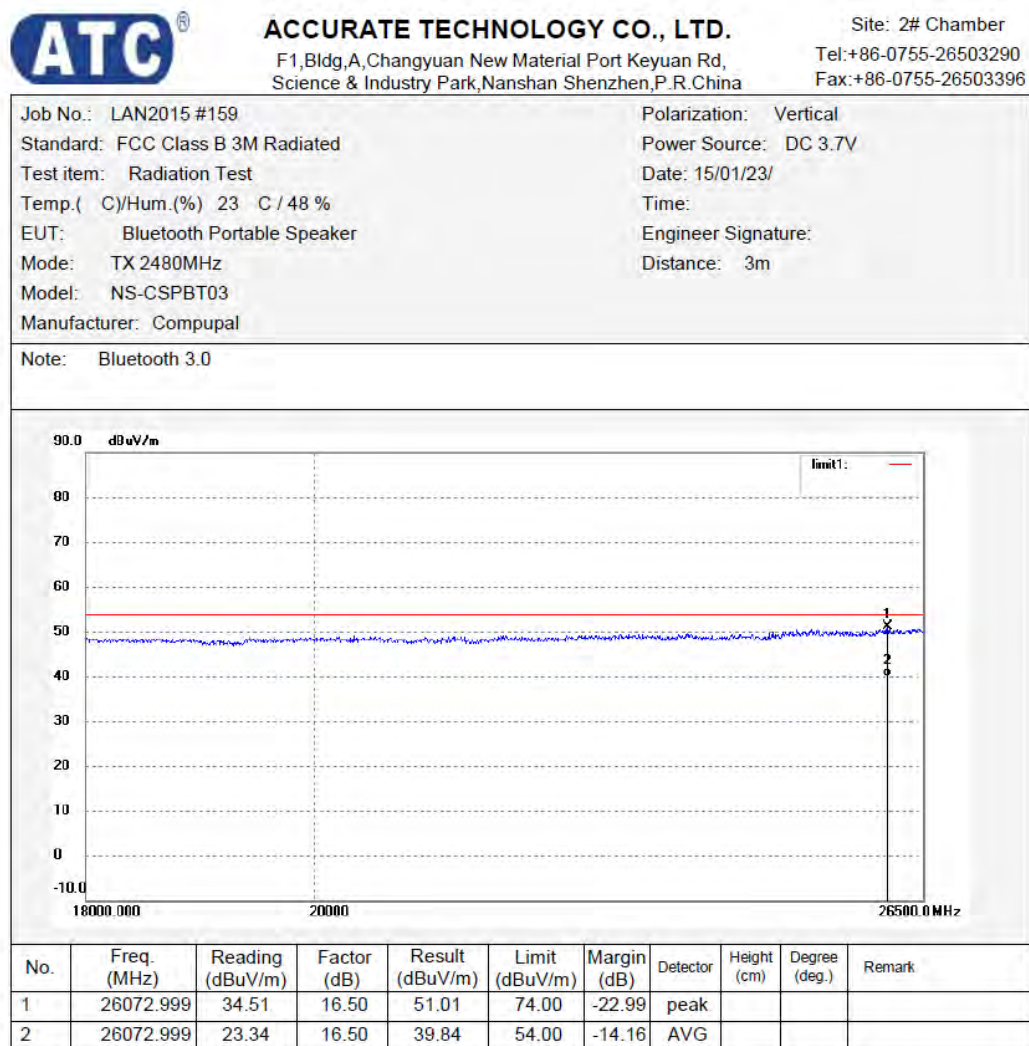


Figure 25: Test figure of spurious emissions, mode B.1, Horizontal polarity (9kHz – 30MHz)

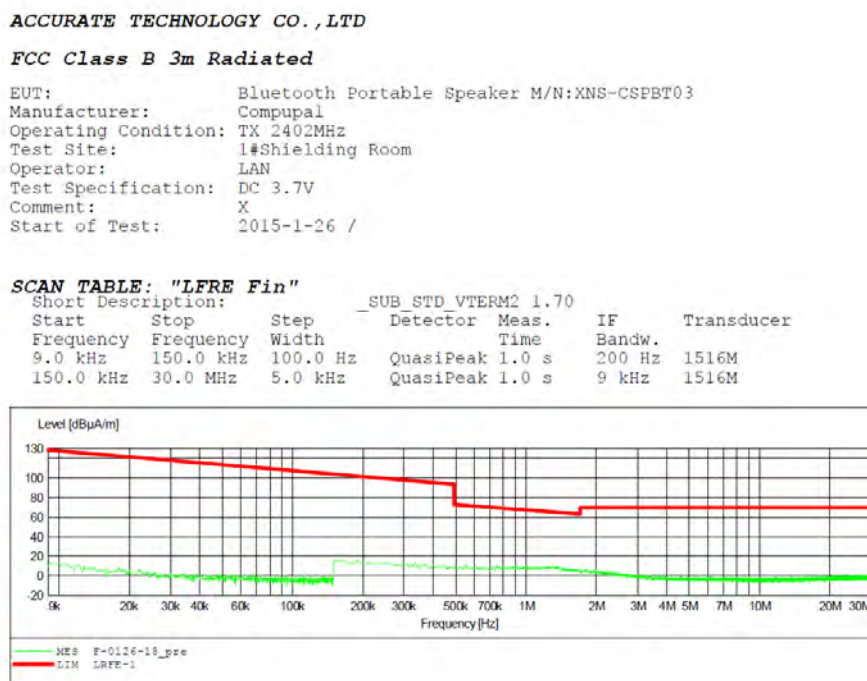


Figure 26: Test figure of spurious emissions, mode B.1, Vertical polarity (9kHz – 30MHz)

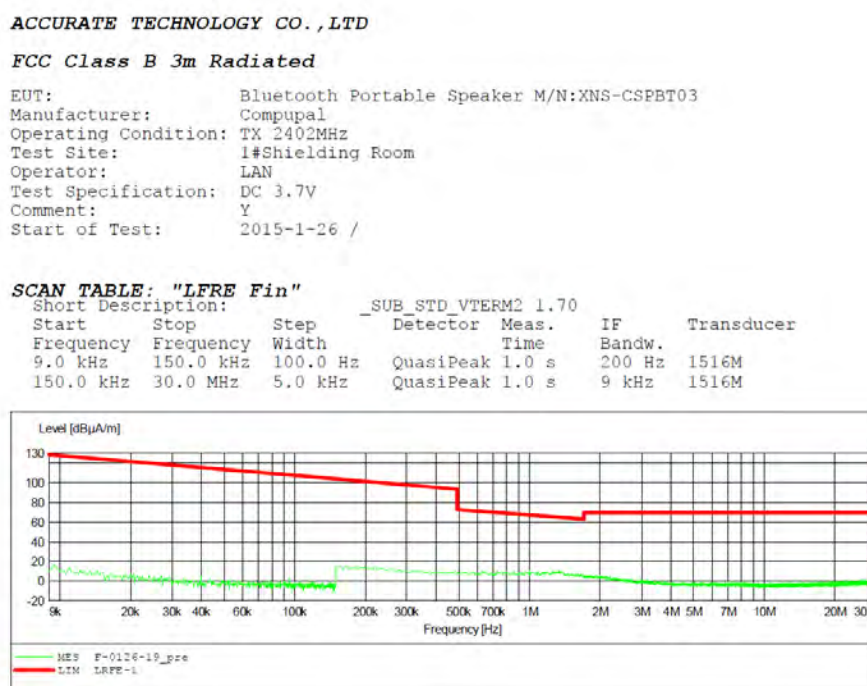


Figure 27: Test figure of spurious emissions, mode B.1, Horizontal polarity (30MHz – 1GHz)

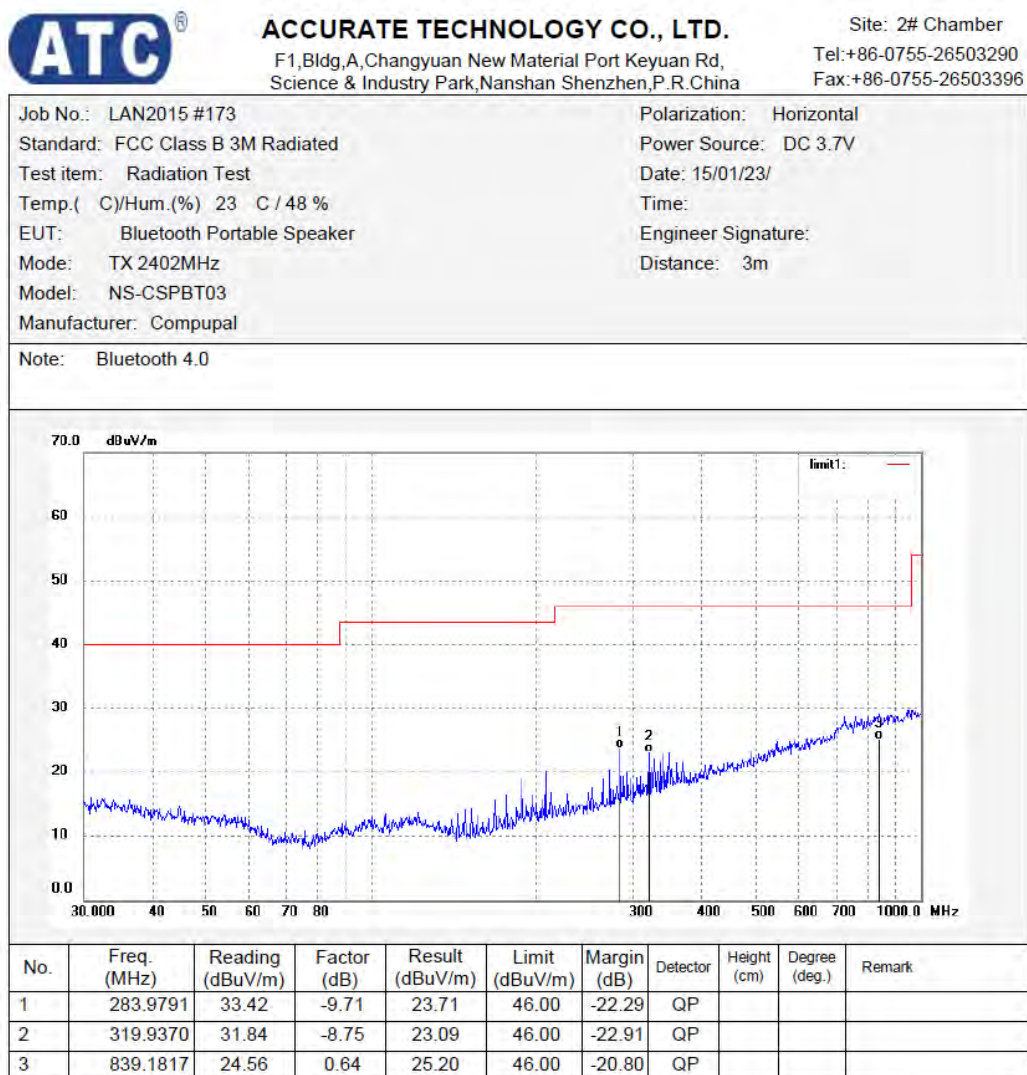


Figure 28: Test figure of spurious emissions, mode B.1, Vertical polarity (30MHz – 1GHz)

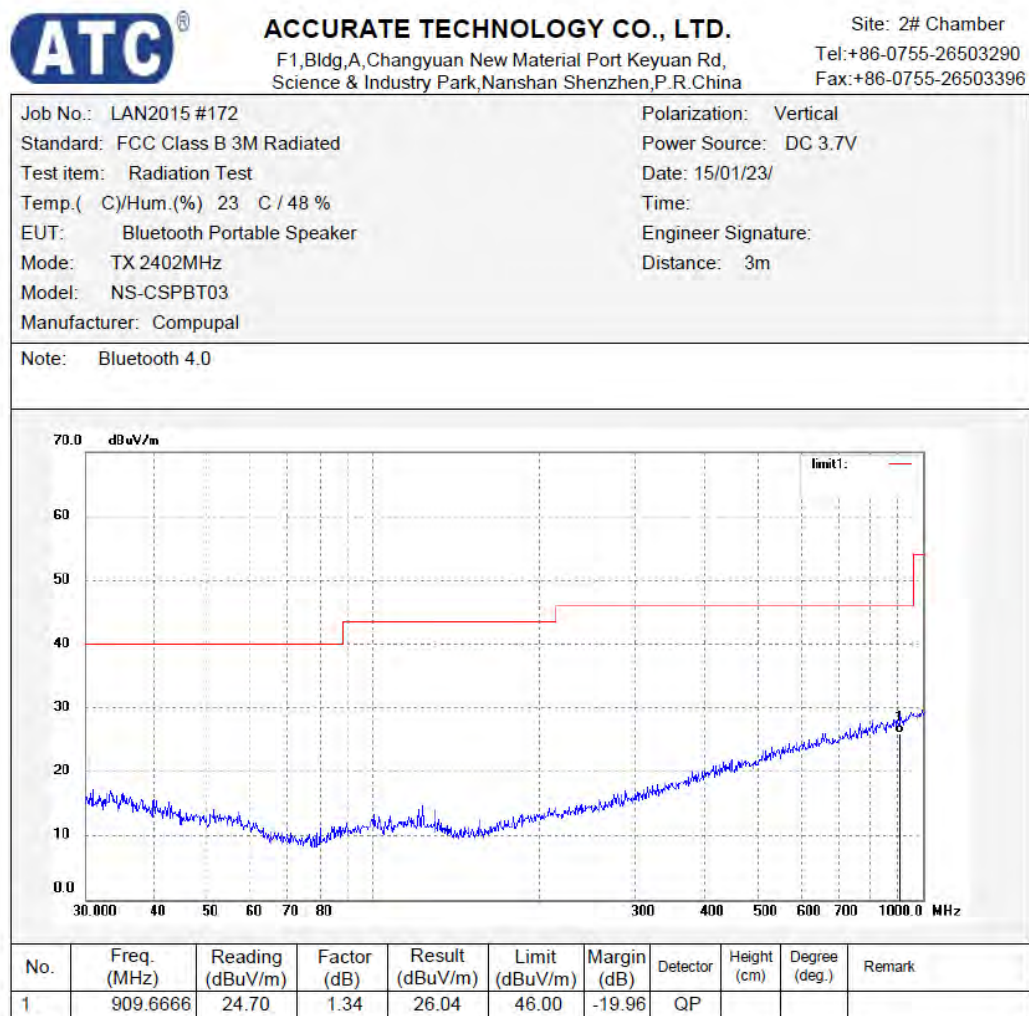


Figure 29: Test figure of spurious emissions, mode B.1, Horizontal polarity (1GHz –18GHz)

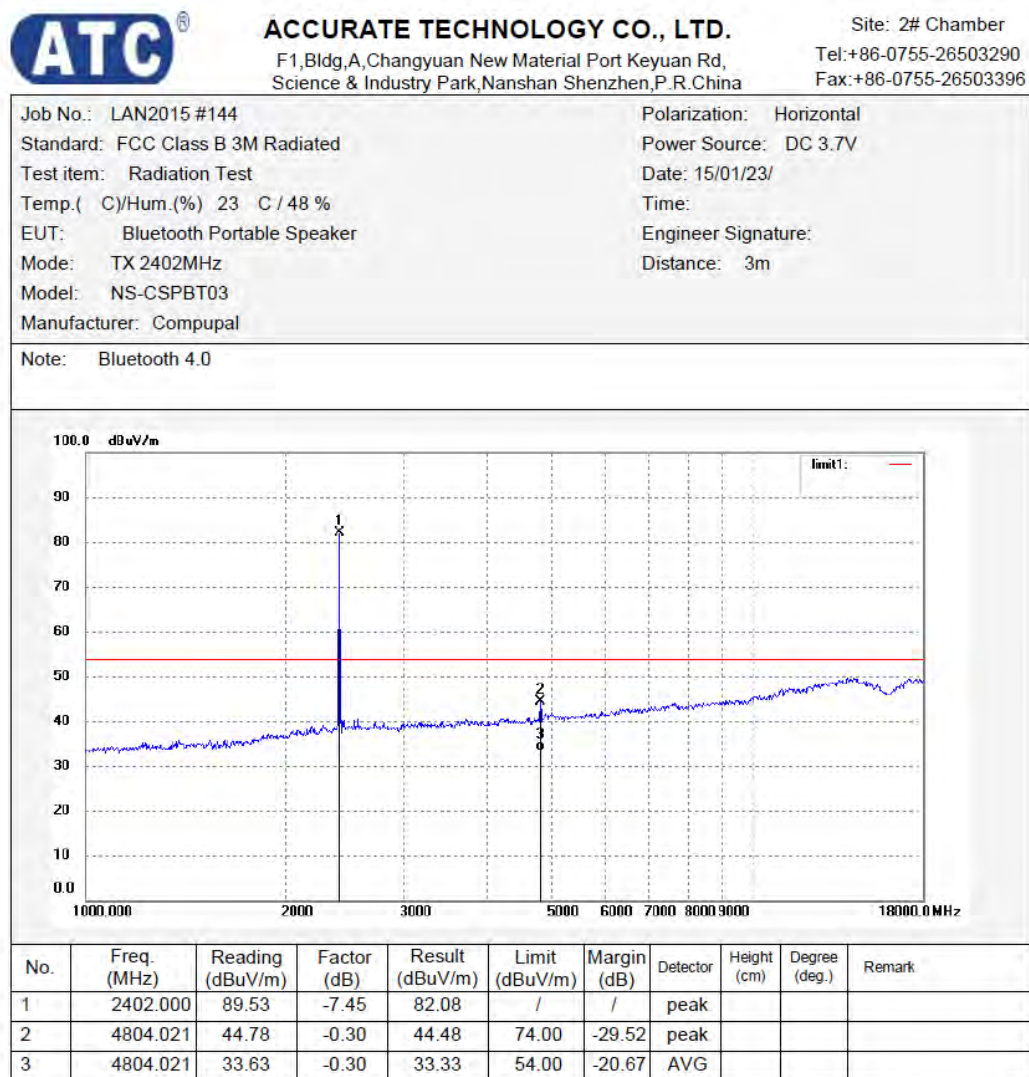


Figure 30: Test figure of spurious emissions, mode B.1, Vertical polarity (1GHz – 18GHz)

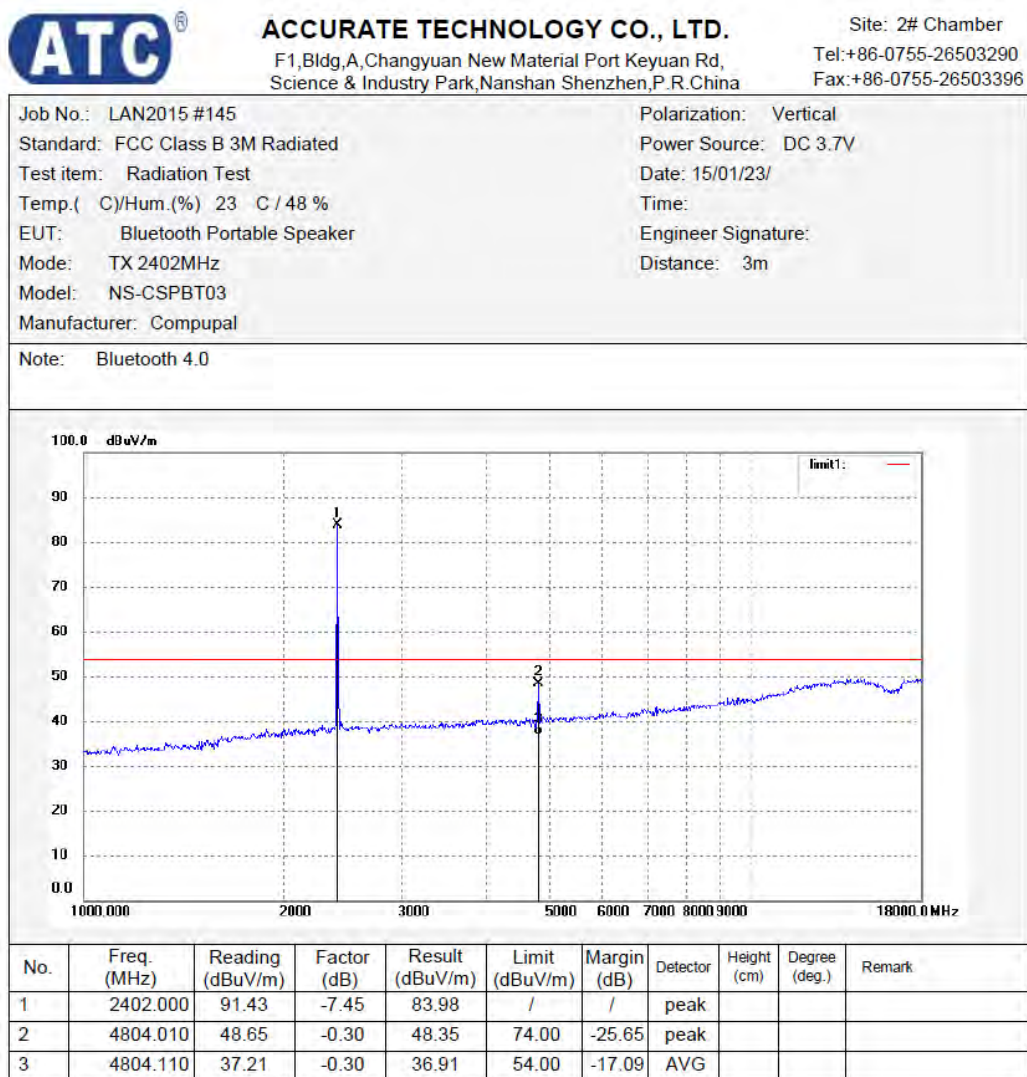


Figure 31: Test figure of spurious emissions, mode B.1, Horizontal polarity (18GHz –25GHz)

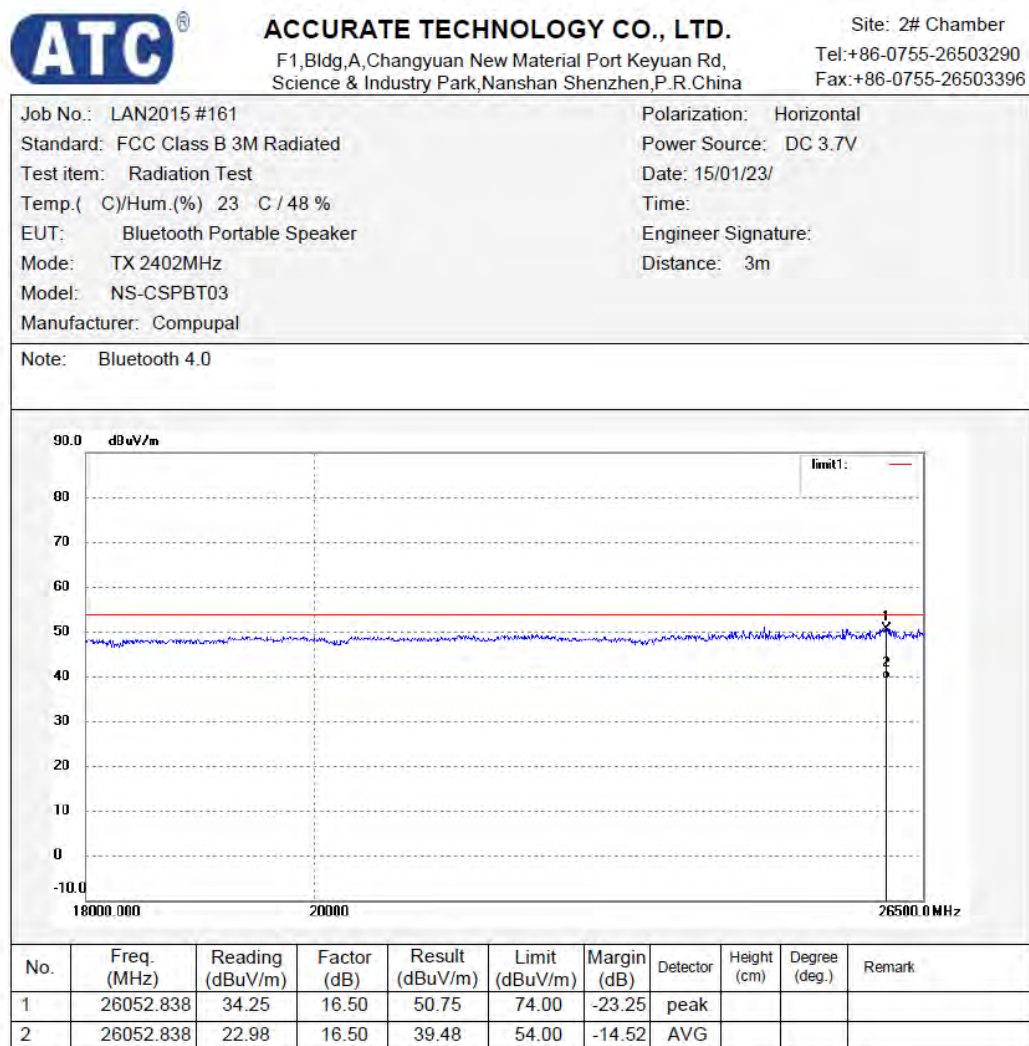


Figure 32: Test figure of spurious emissions, mode B.1, Vertical polarity (18GHz – 25GHz)

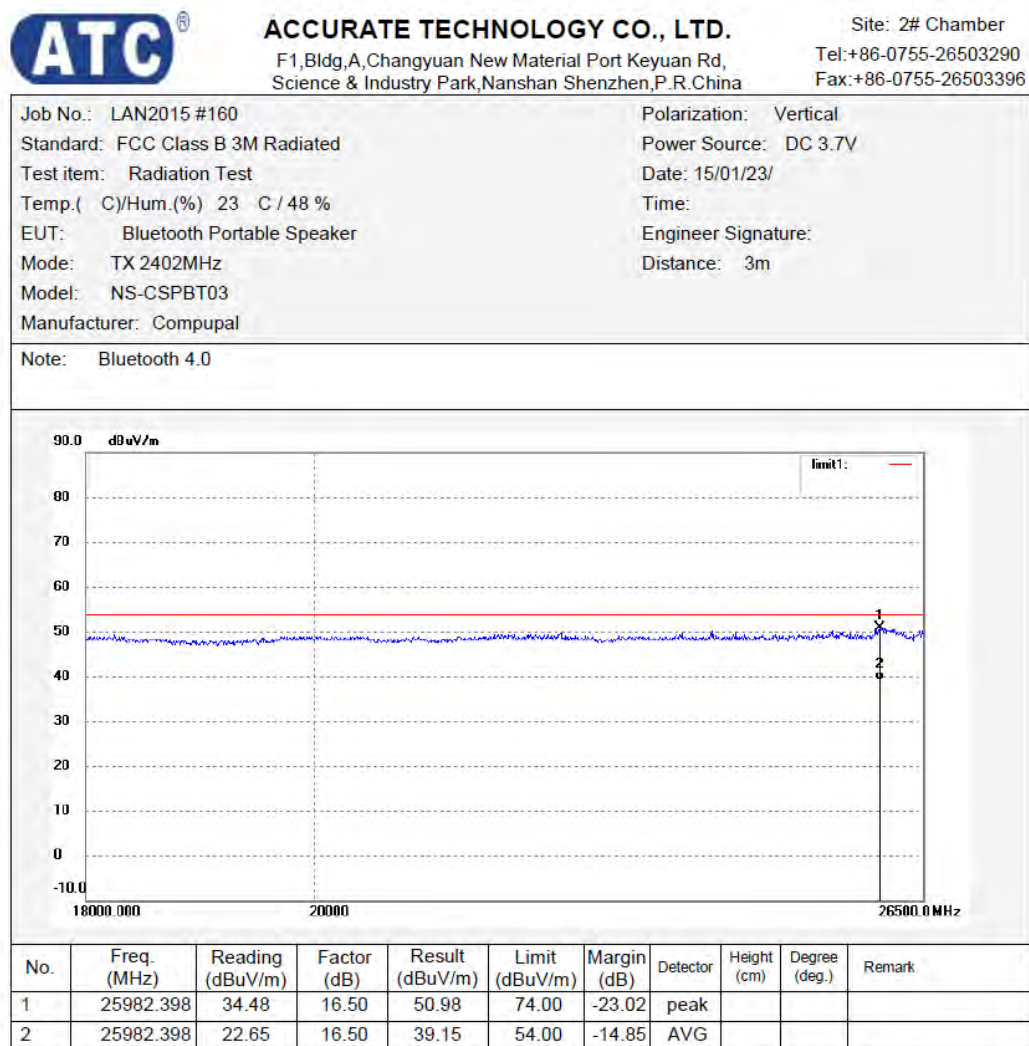


Figure 33: Test figure of spurious emissions, mode B.2, Horizontal polarity (9kHz – 30MHz)

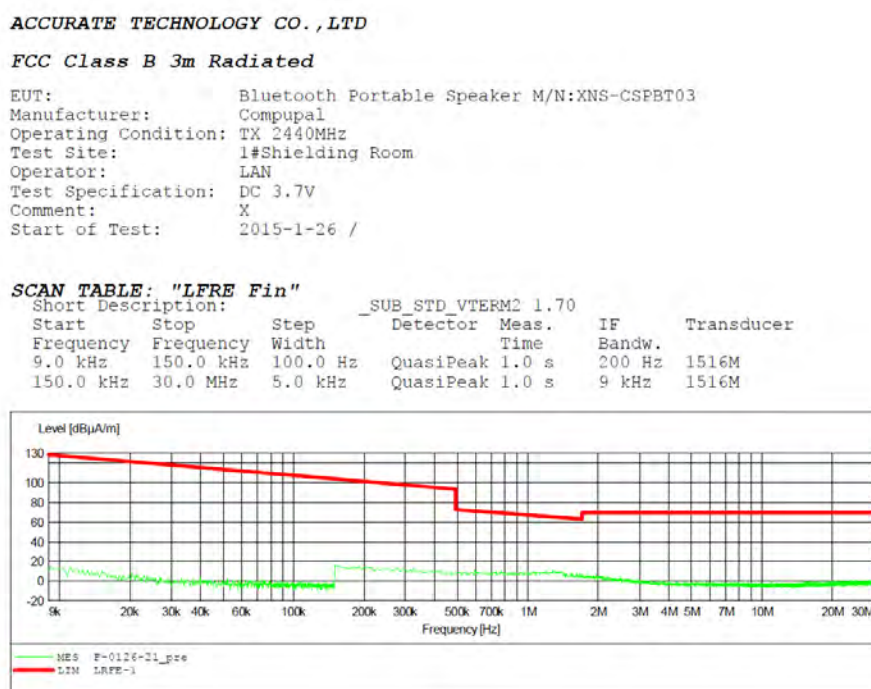


Figure 34: Test figure of spurious emissions, mode B.2, Vertical polarity (9kHz – 30MHz)

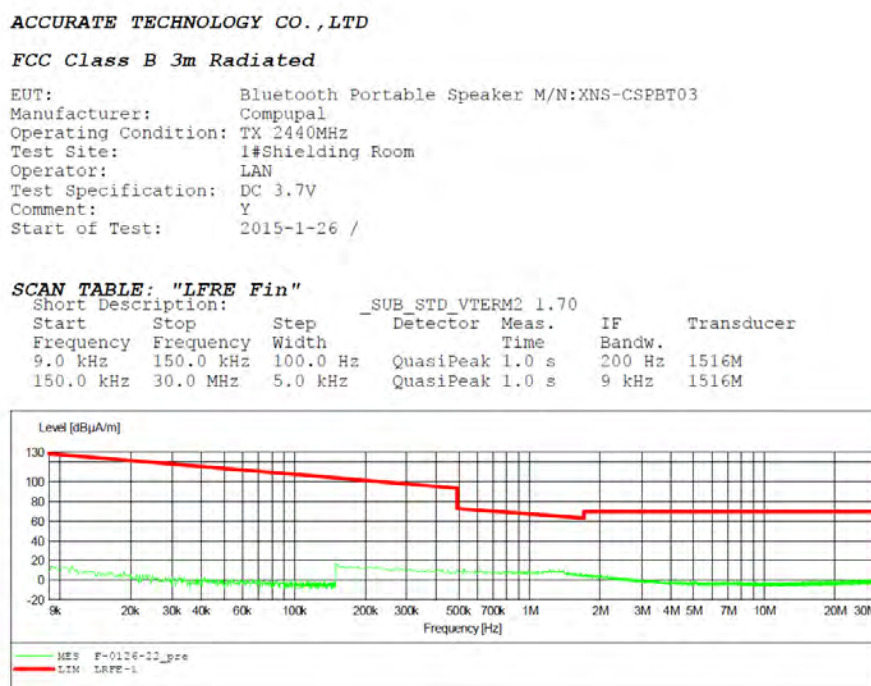


Figure 35: Test figure of spurious emissions, mode B.2, Horizontal polarity (30MHz – 1GHz)

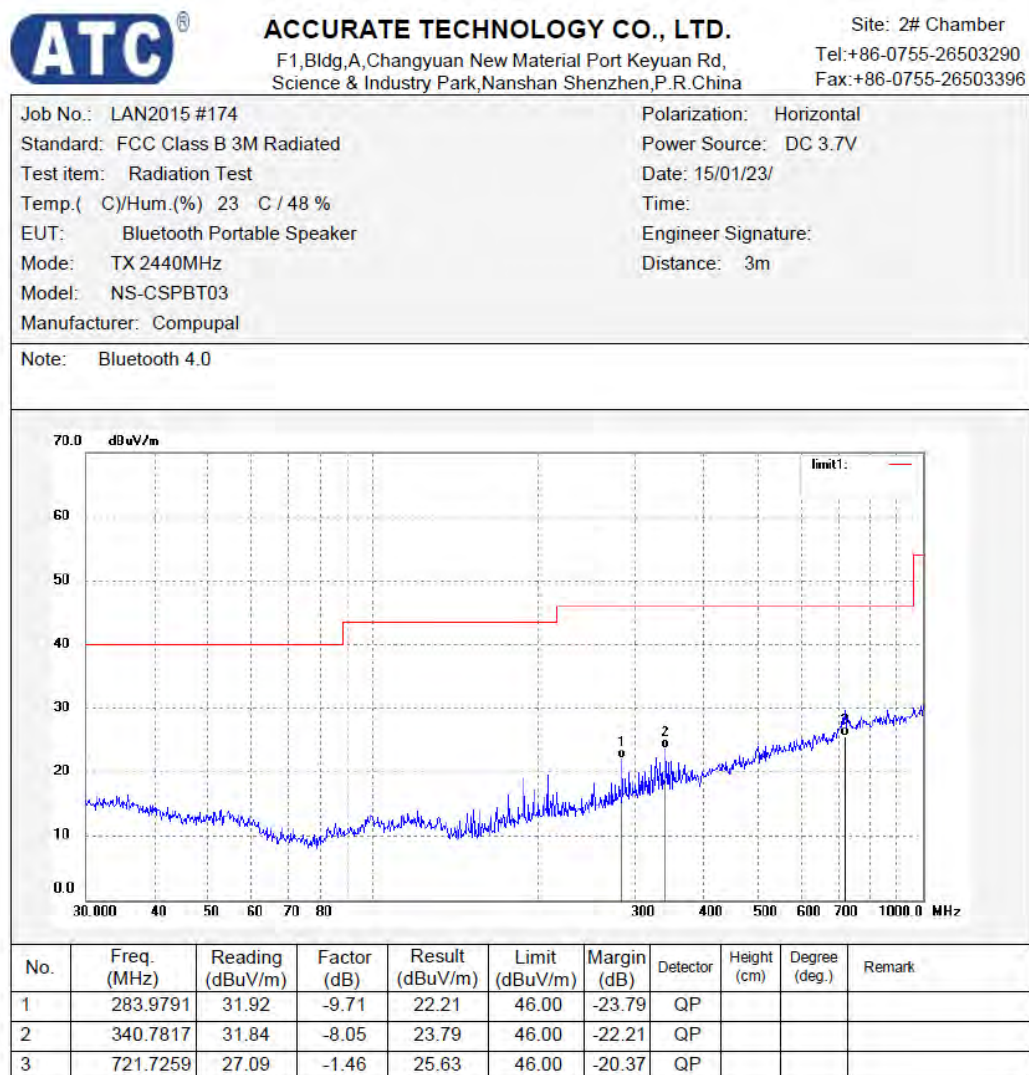


Figure 36: Test figure of spurious emissions, mode B.2, Vertical polarity (30MHz – 1GHz)

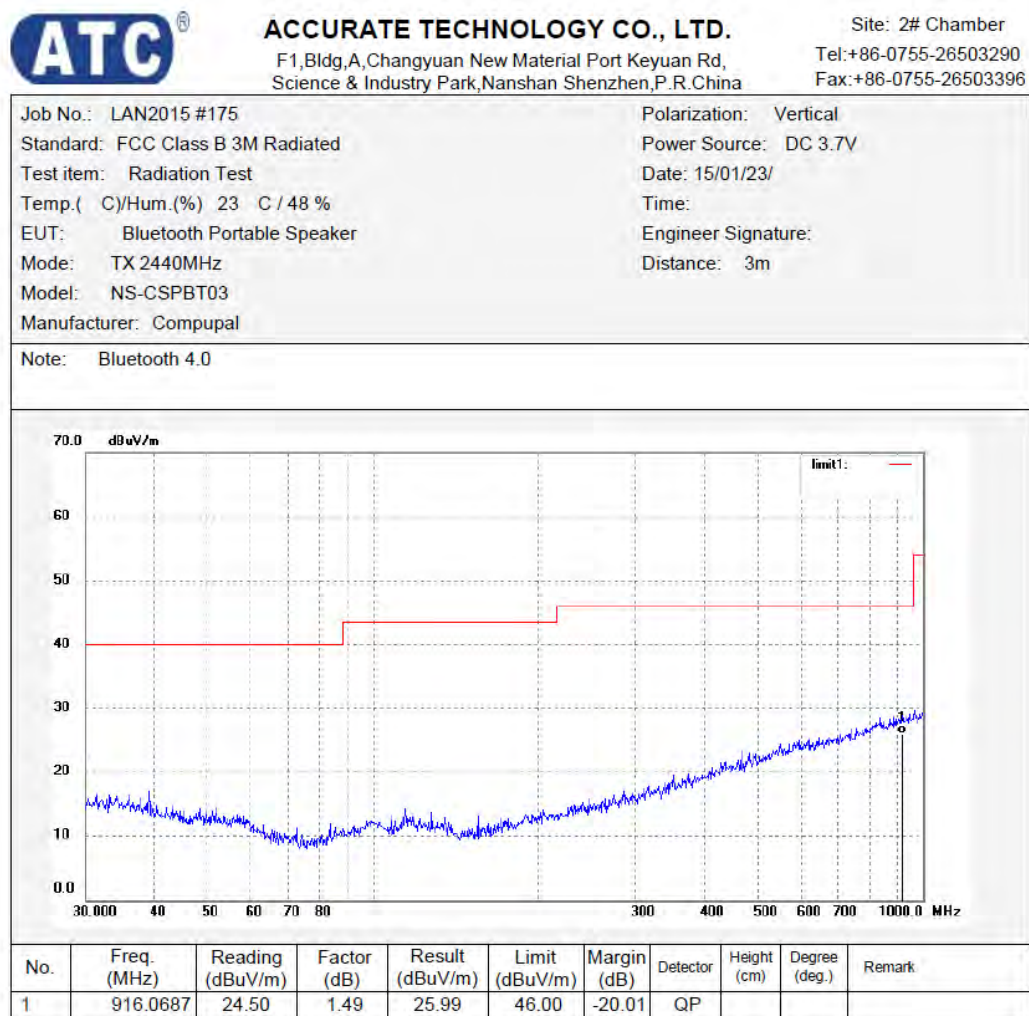


Figure 37: Test figure of spurious emissions, mode B.2, Horizontal polarity (1GHz – 18GHz)

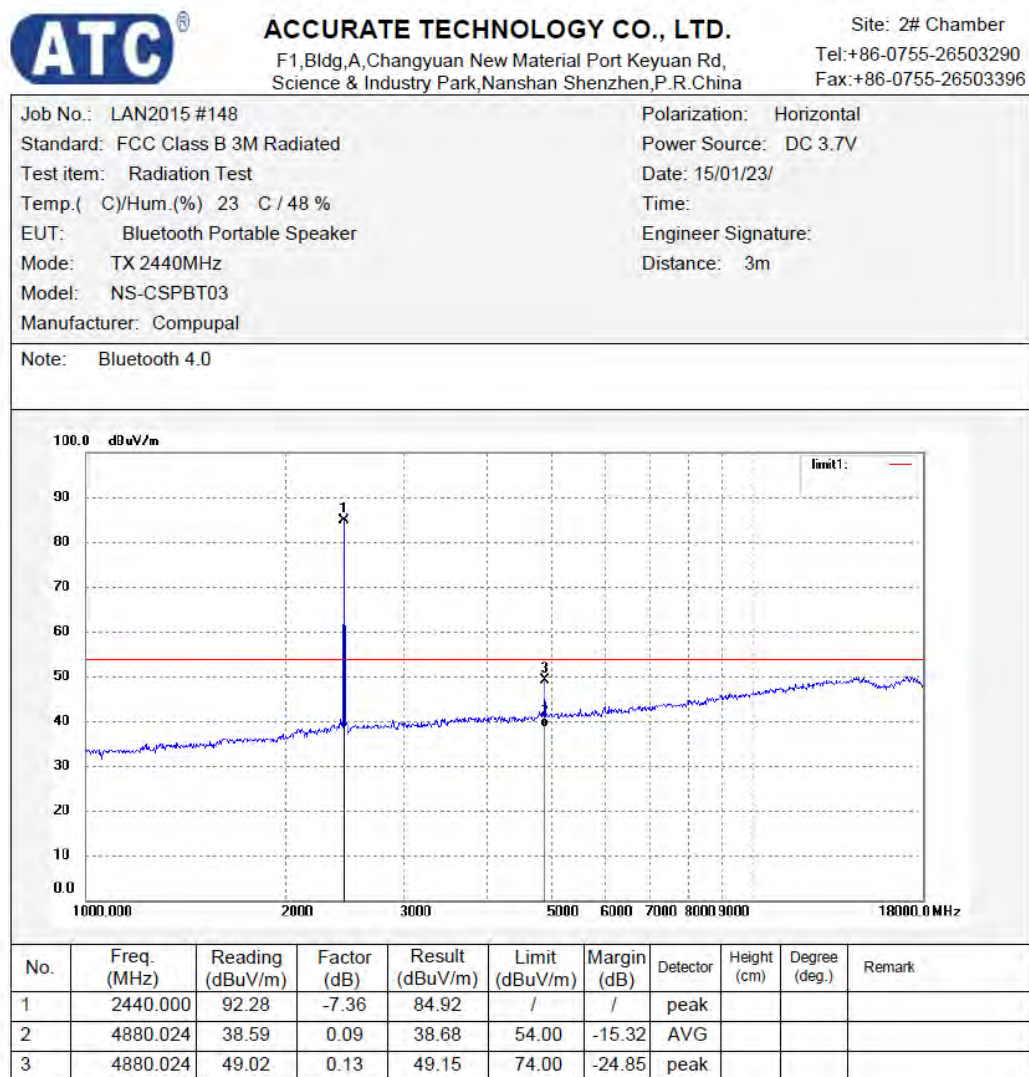


Figure 38: Test figure of spurious emissions, mode B.2, Vertical polarity (1GHz – 18GHz)

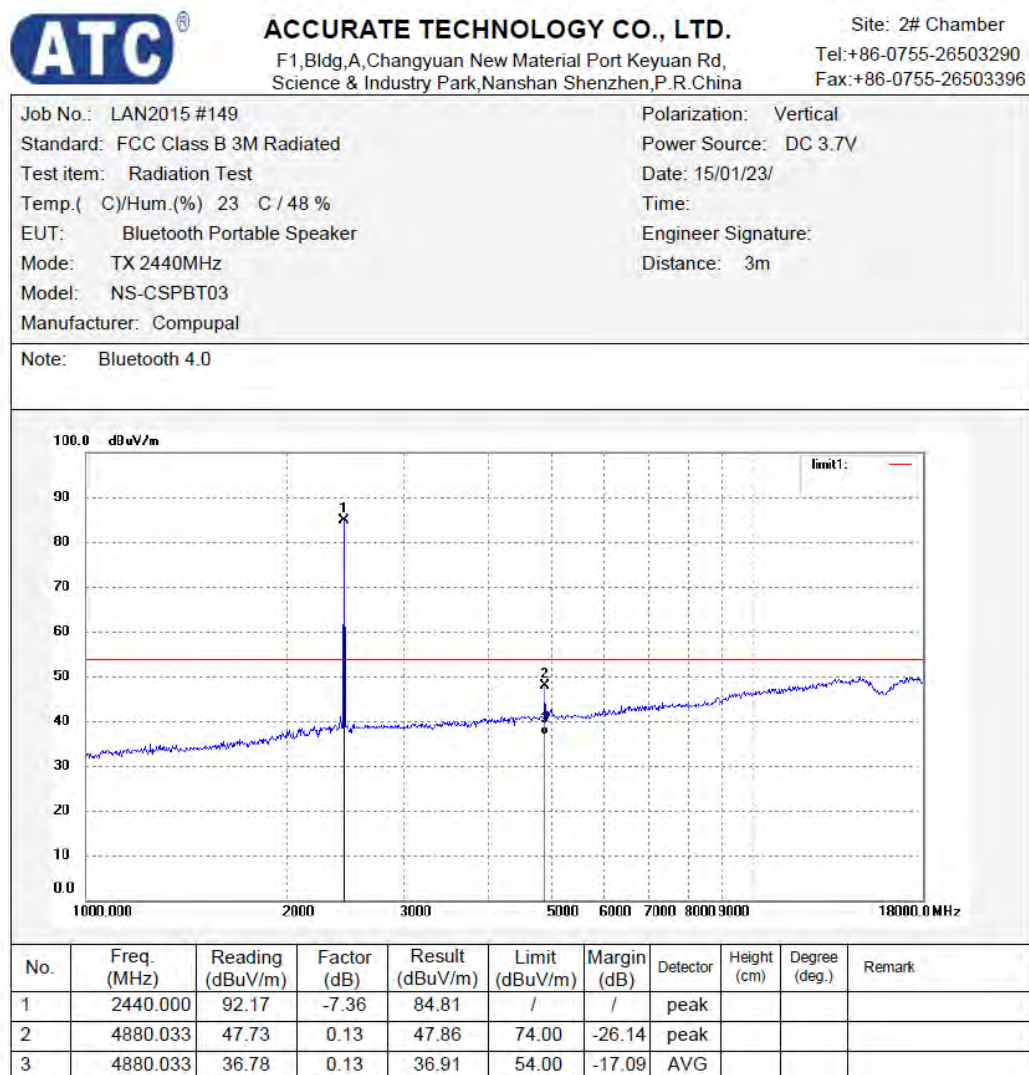


Figure 39: Test figure of spurious emissions, mode B.2, Horizontal polarity (18GHz – 25GHz)

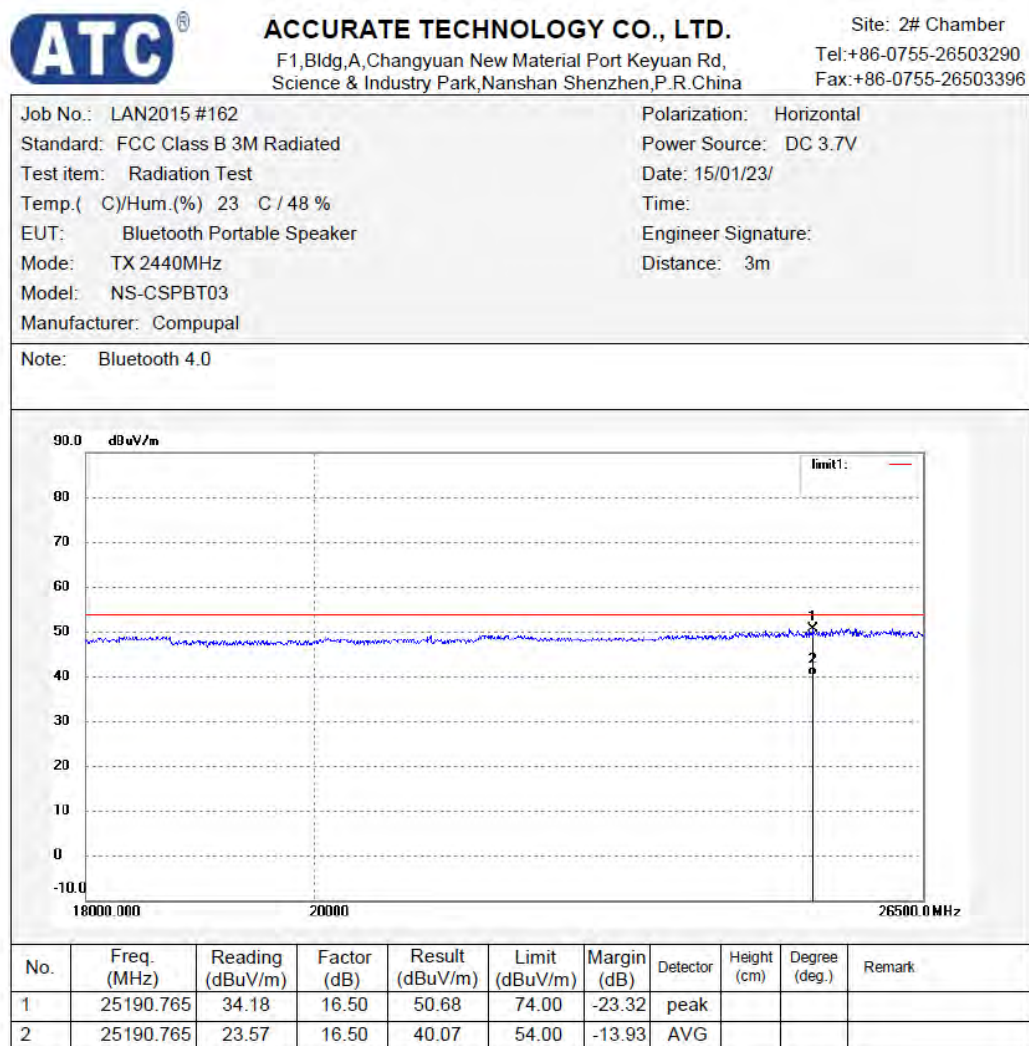


Figure 40: Test figure of spurious emissions, mode B.2, Vertical polarity (18GHz – 25GHz)

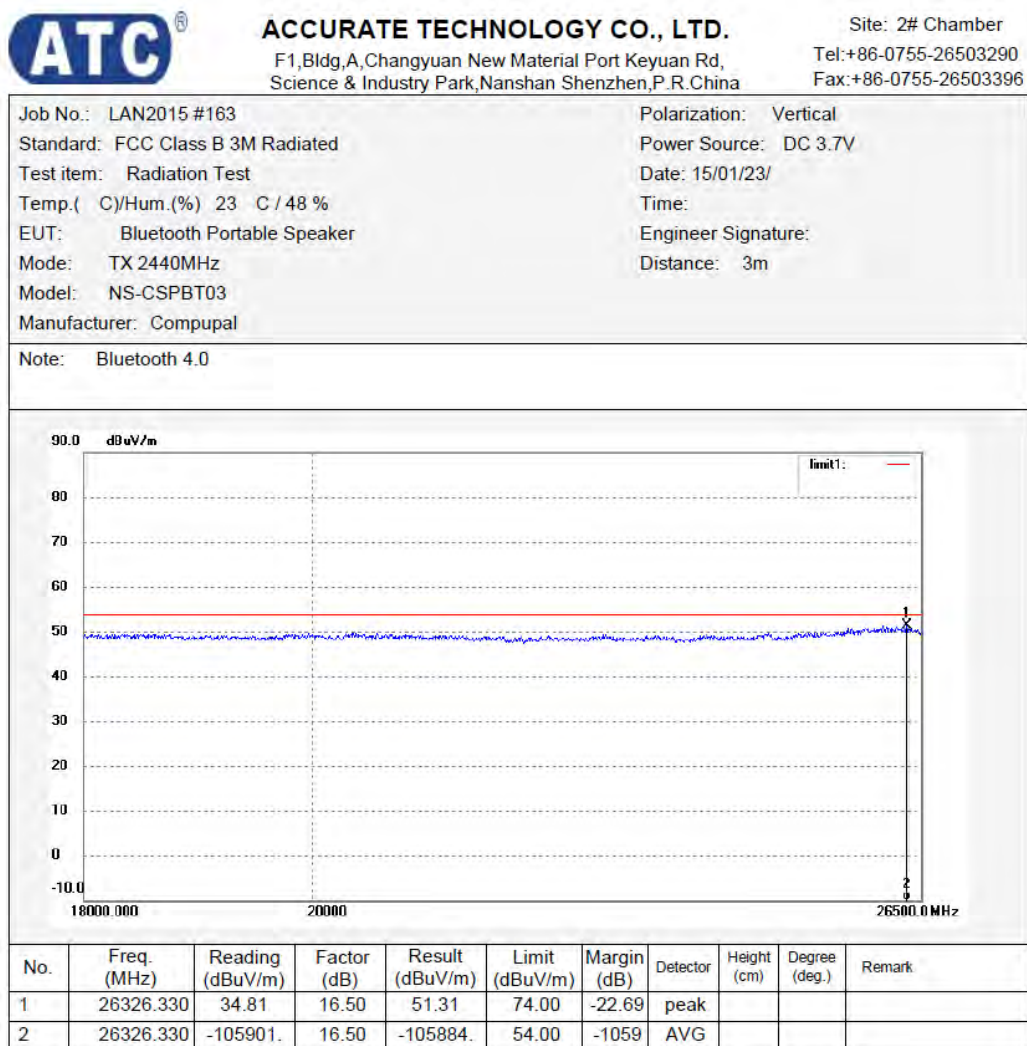


Figure 41: Test figure of spurious emissions, mode B.3, Horizontal polarity (9kHz – 30MHz)

ACCURATE TECHNOLOGY CO.,LTD

FCC Class B 3m Radiated

EUT: Bluetooth Portable Speaker M/N:XNS-CSPBT03
Manufacturer: Compupal
Operating Condition: TX 2480MHz
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: DC 3.7V
Comment: X
Start of Test: 2015-1-26 /

SCAN TABLE: "LFRE Fin"

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

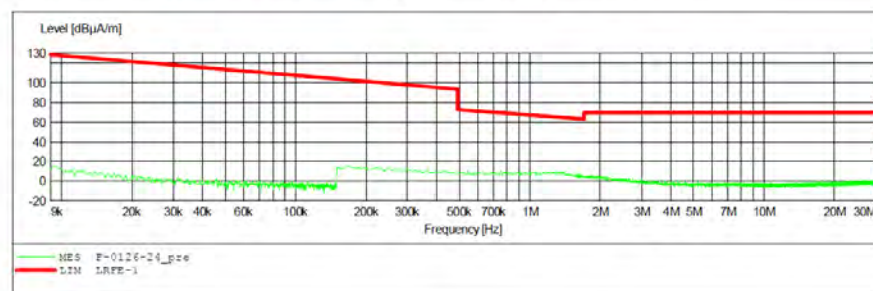


Figure 42: Test figure of spurious emissions, mode B.3, Vertical polarity (9kHz – 30MHz)

ACCURATE TECHNOLOGY CO.,LTD

FCC Class B 3m Radiated

EUT: Bluetooth Portable Speaker M/N:XNS-CSPBT03
Manufacturer: Compupal
Operating Condition: TX 2480MHz
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: DC 3.7V
Comment: Y
Start of Test: 2015-1-26 /

SCAN TABLE: "LFRE Fin"

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

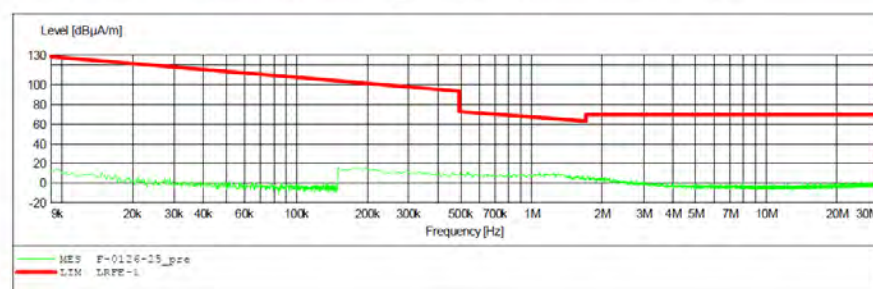


Figure 43: Test figure of spurious emissions, mode B.3, Horizontal polarity (30MHz – 1GHz)

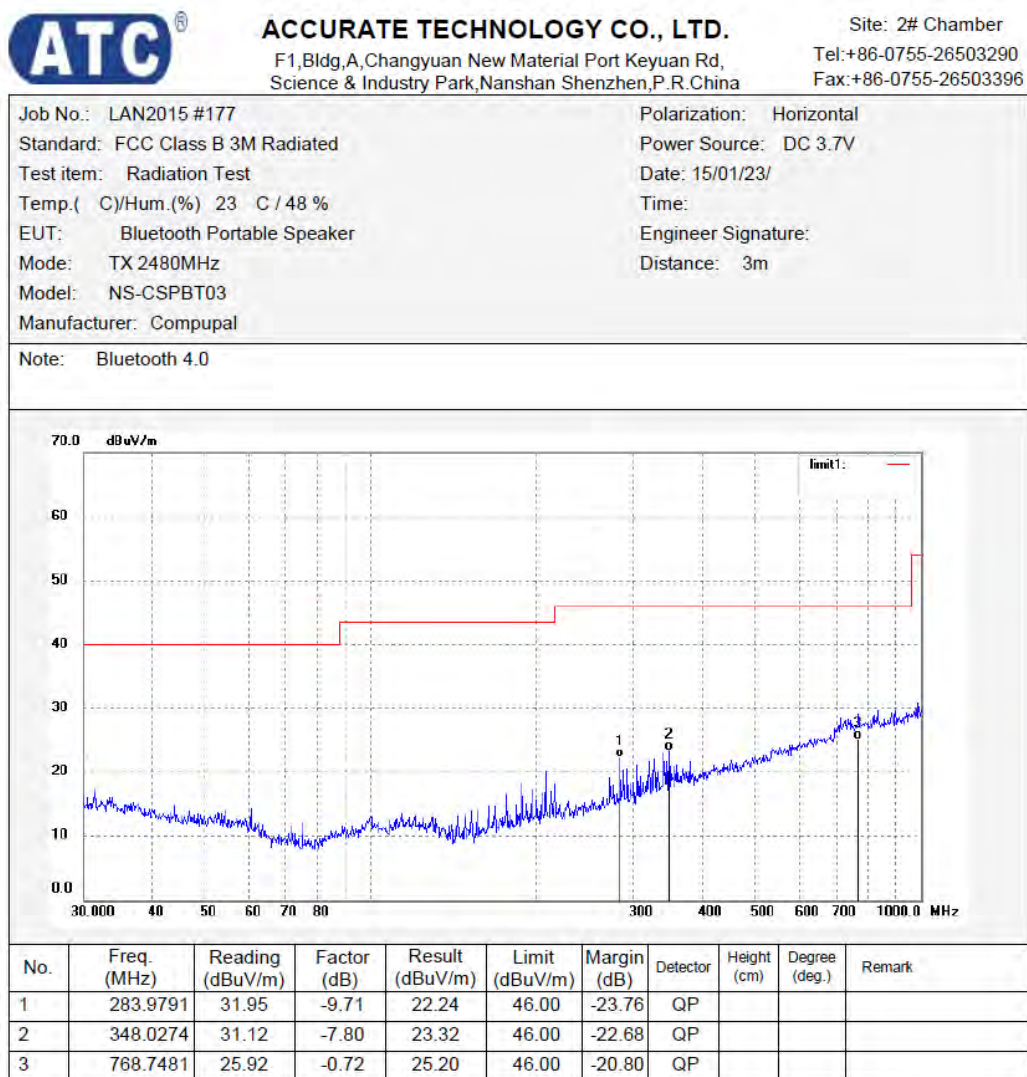


Figure 44: Test figure of spurious emissions, mode B.3, Vertical polarity (30MHz – 1GHz)

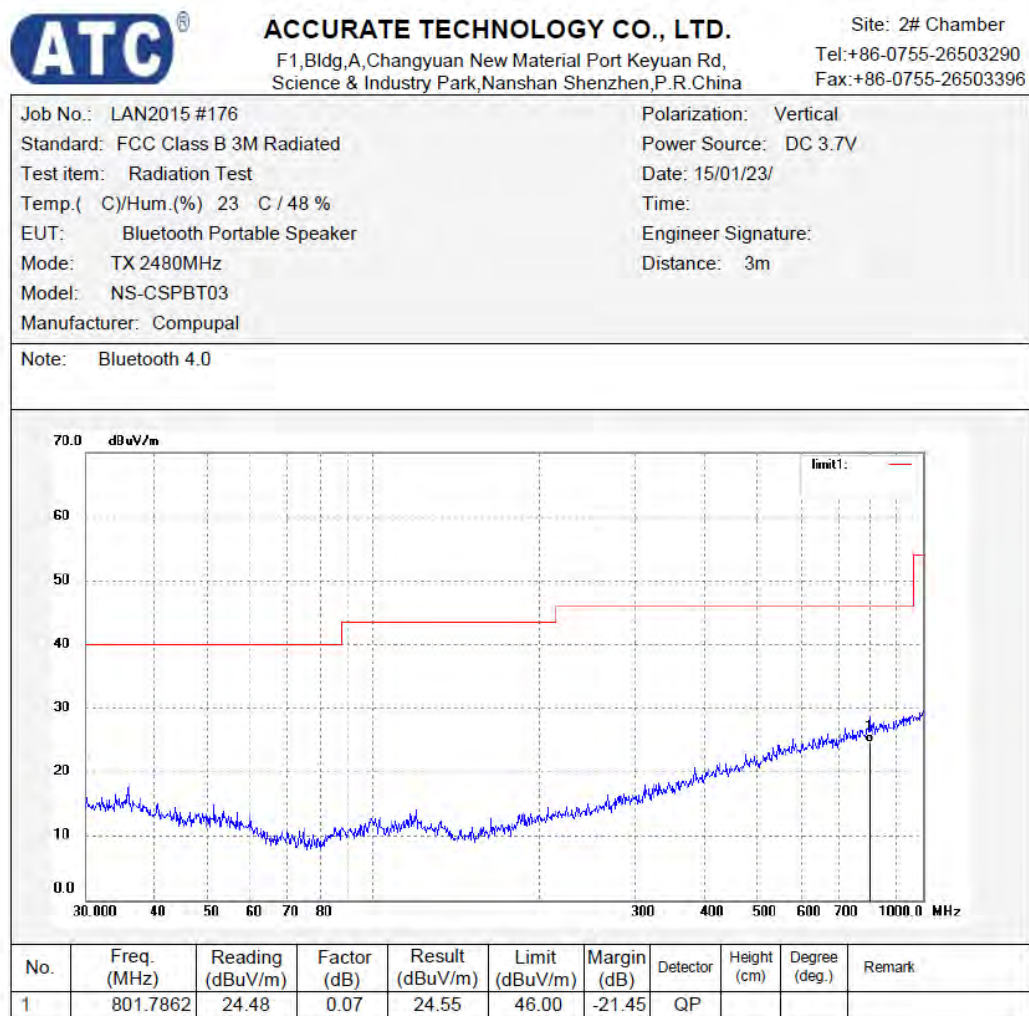


Figure 45: Test figure of spurious emissions, mode B.3, Horizontal polarity (1GHz –18GHz)

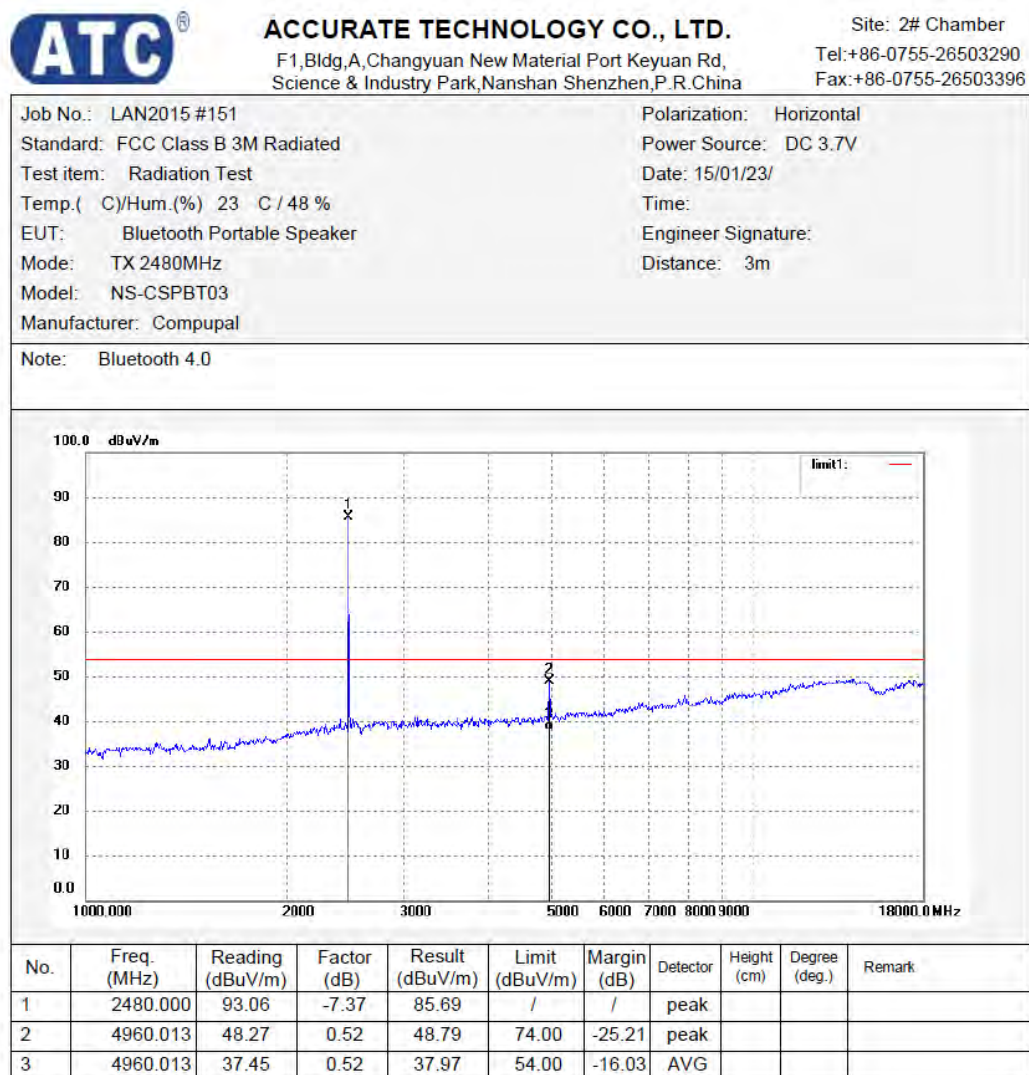


Figure 46: Test figure of spurious emissions, mode B.3, Vertical polarity (1GHz – 18GHz)

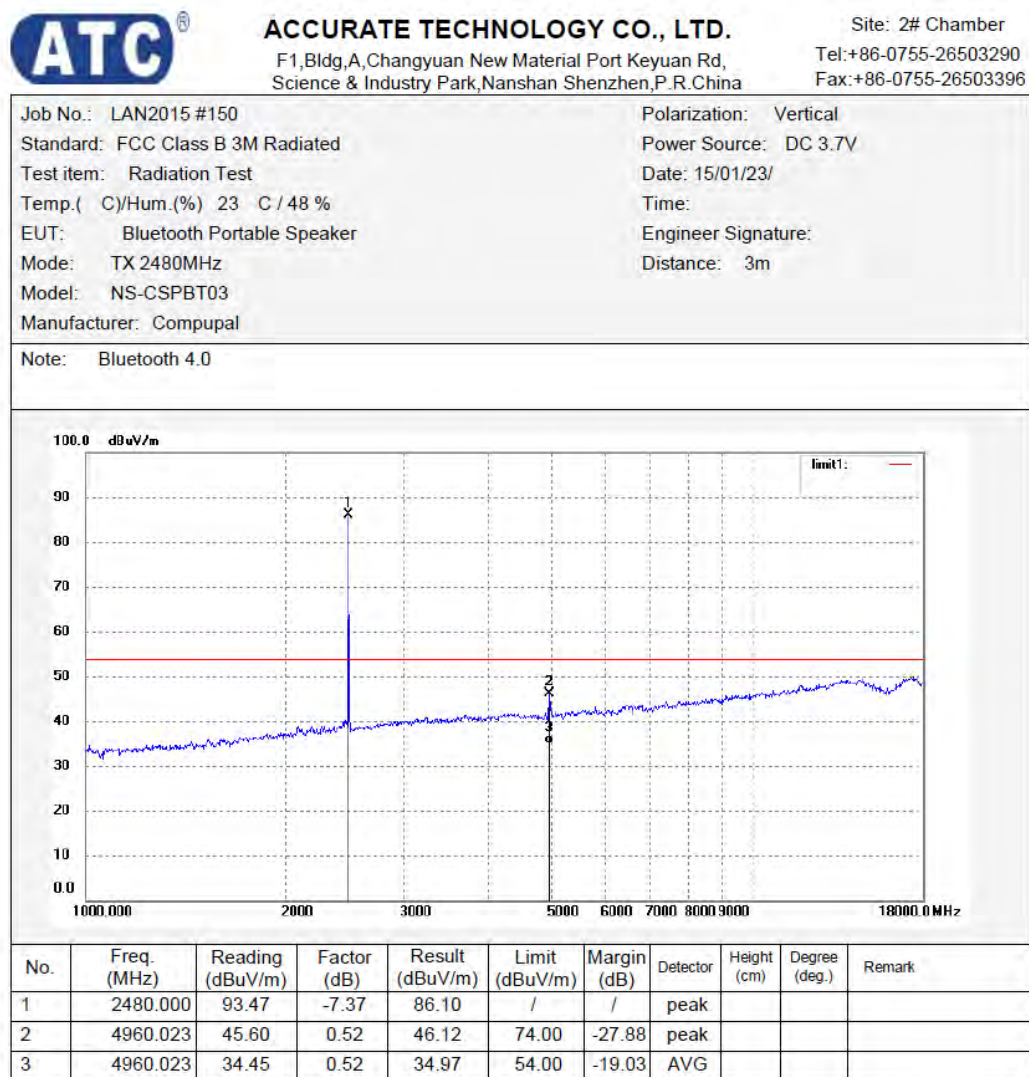


Figure 47: Test figure of spurious emissions, mode B.3, Horizontal polarity (18GHz –25GHz)

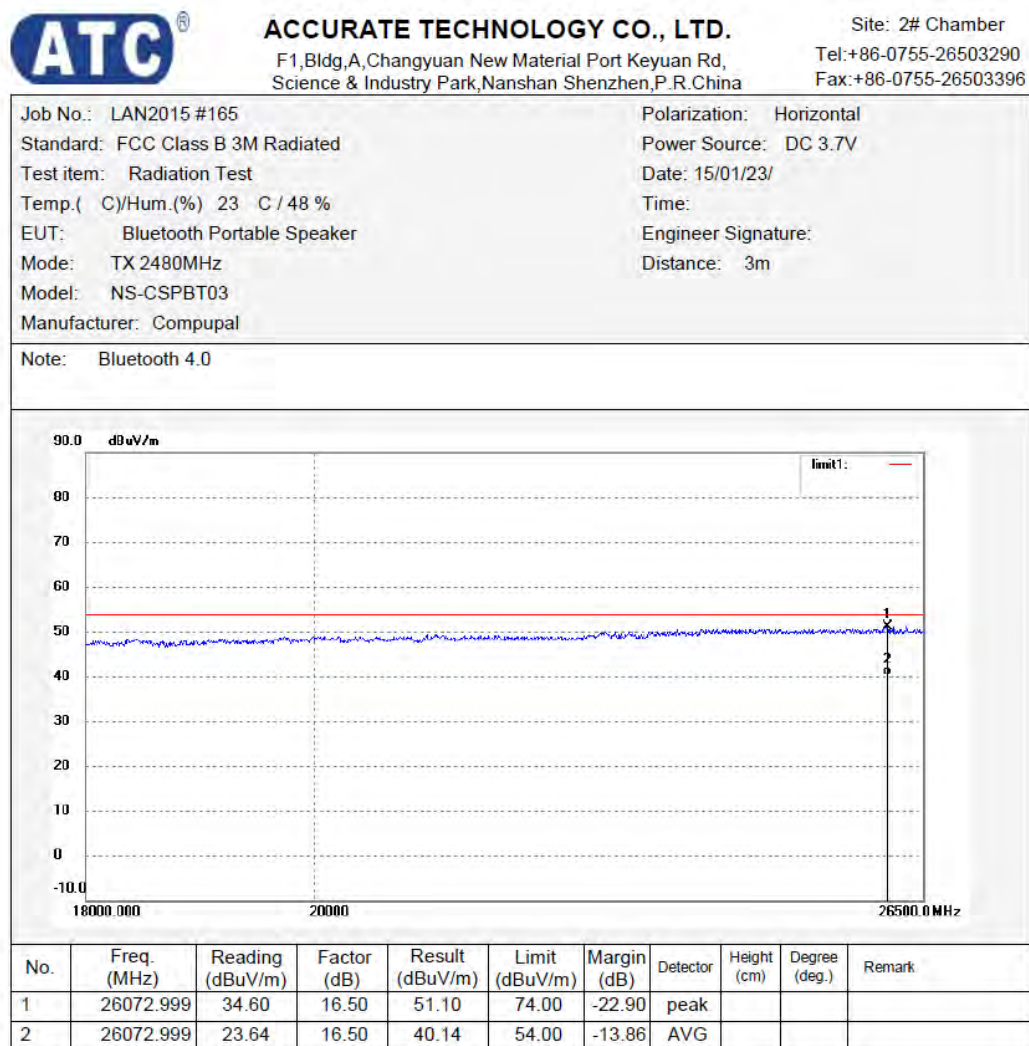


Figure 48: Test figure of spurious emissions, mode B.3, Vertical polarity (18GHz – 25GHz)

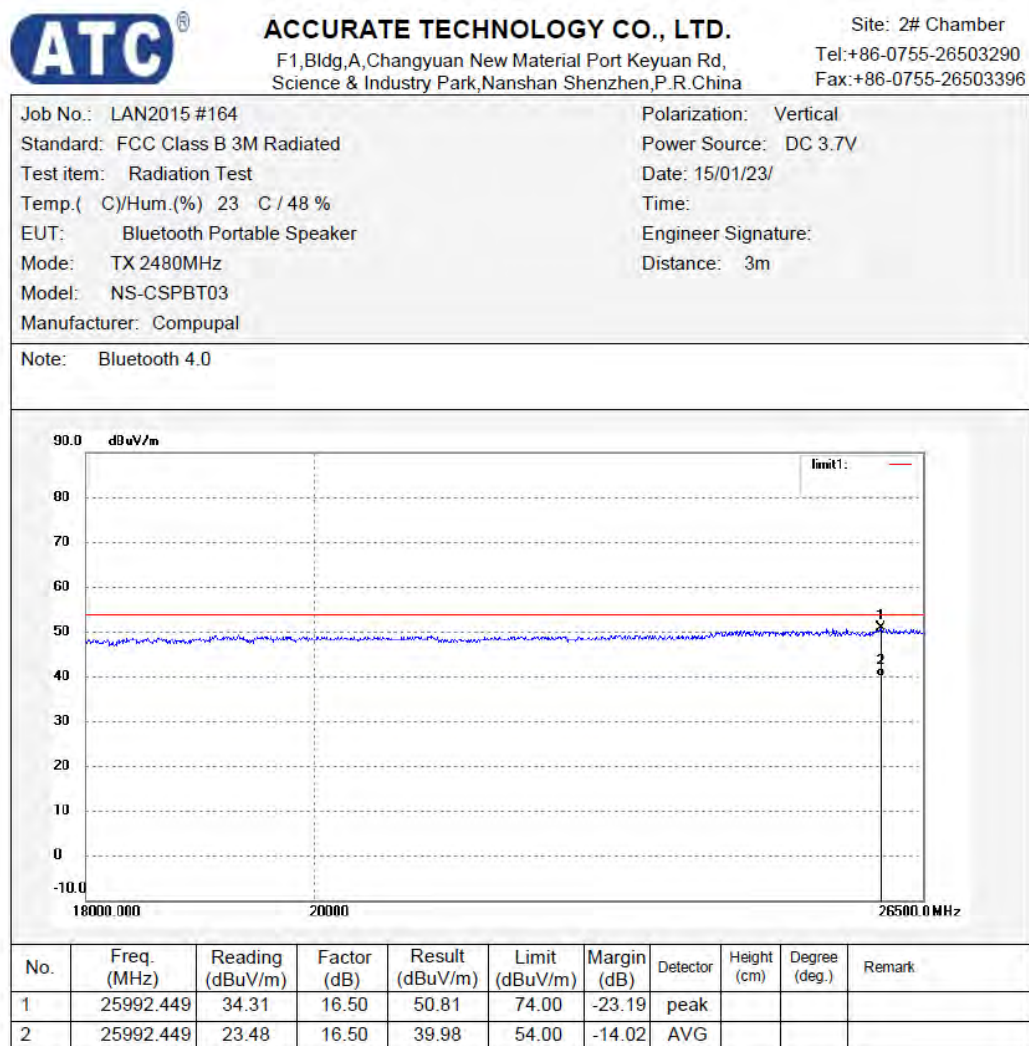


Figure 49: Test figure of Radiated emissions in restricted bands, Mode A.1, Horizontal

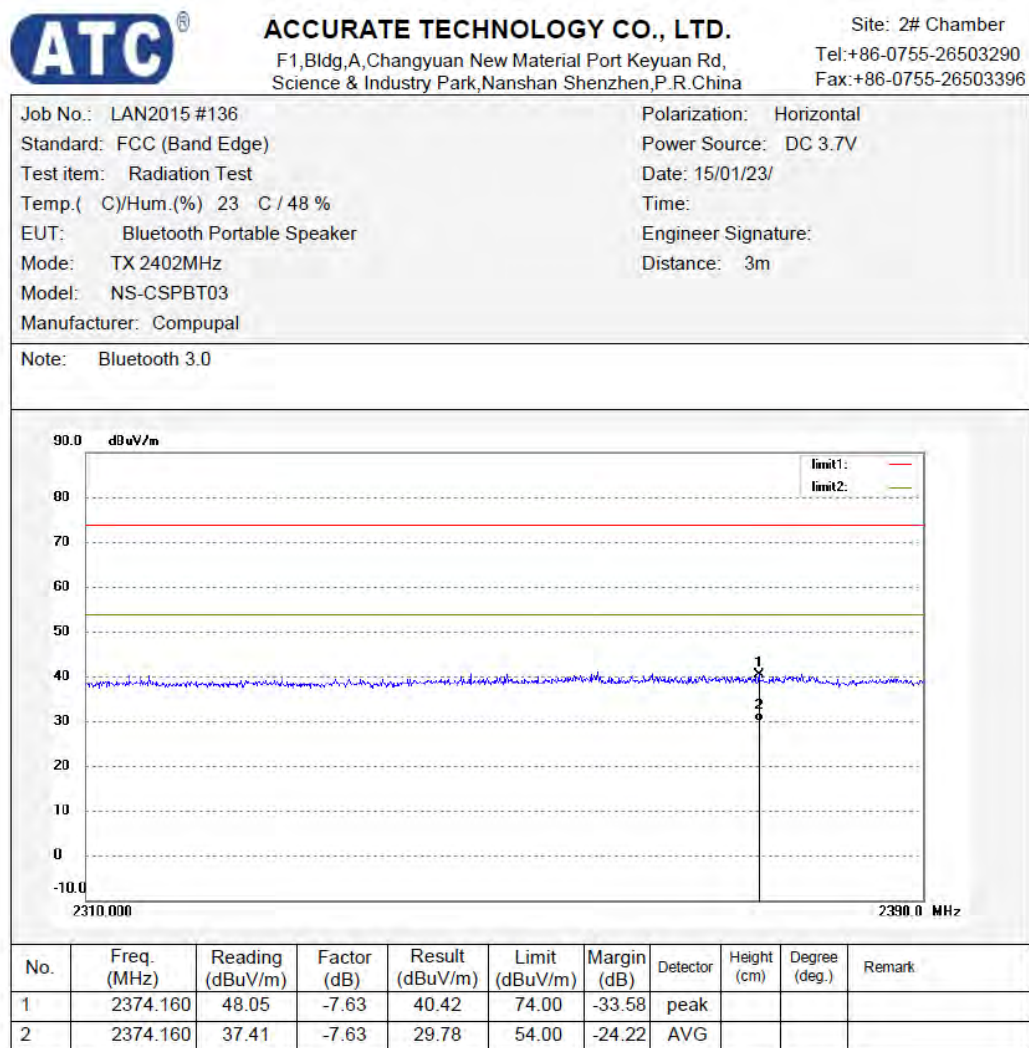


Figure 50: Test figure of Radiated emissions in restricted bands, Mode A.1, Vertical

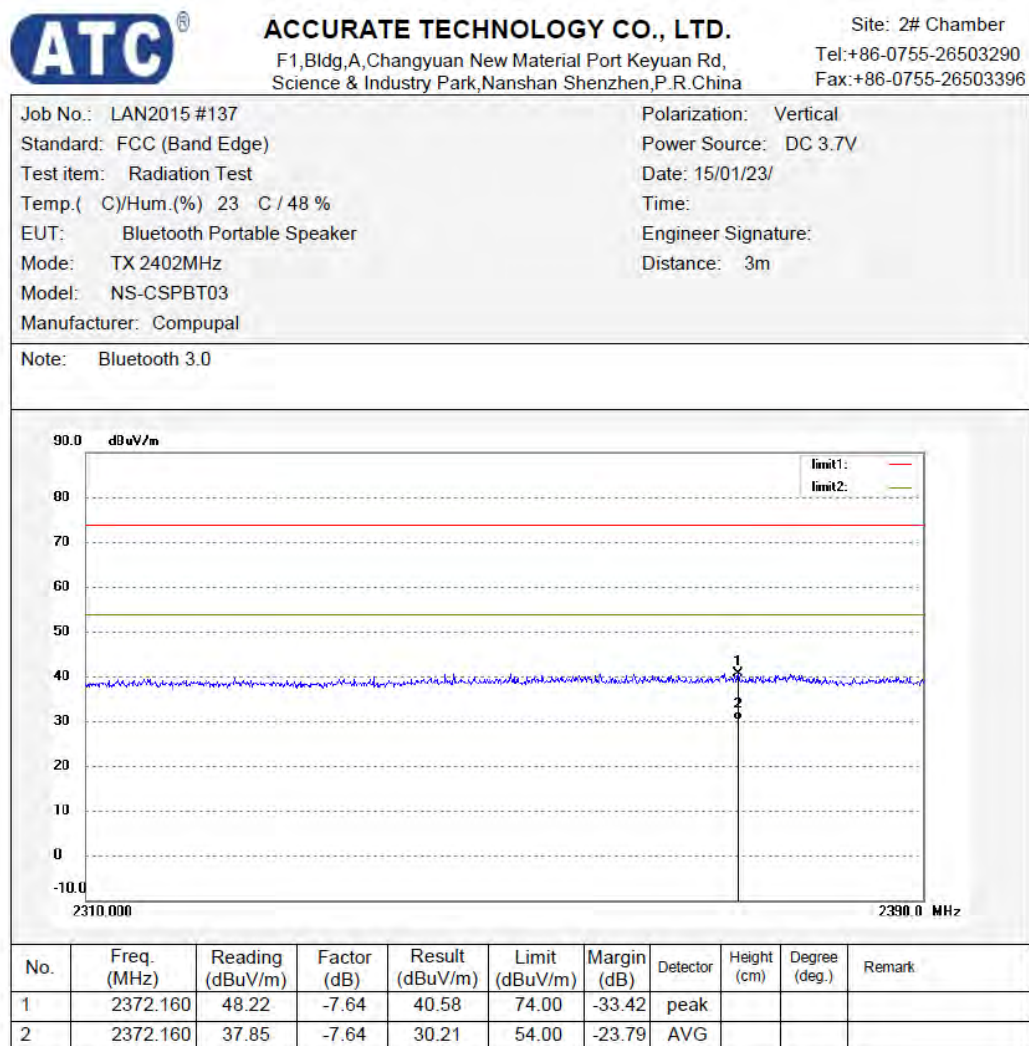


Figure 51: Test figure of Radiated emissions in restricted bands, Mode A.3, Horizontal

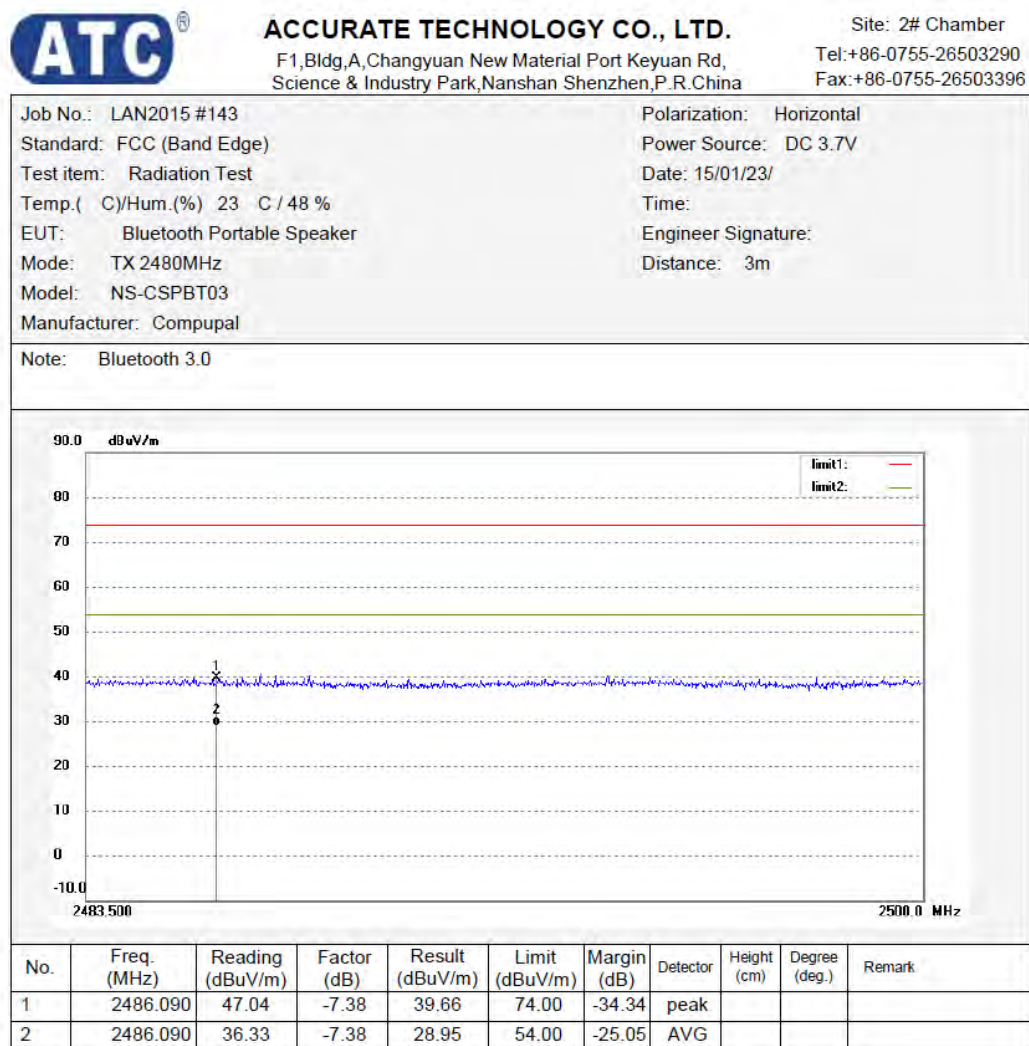


Figure 52: Test figure of Radiated emissions in restricted bands, Mode A.3, Vertical

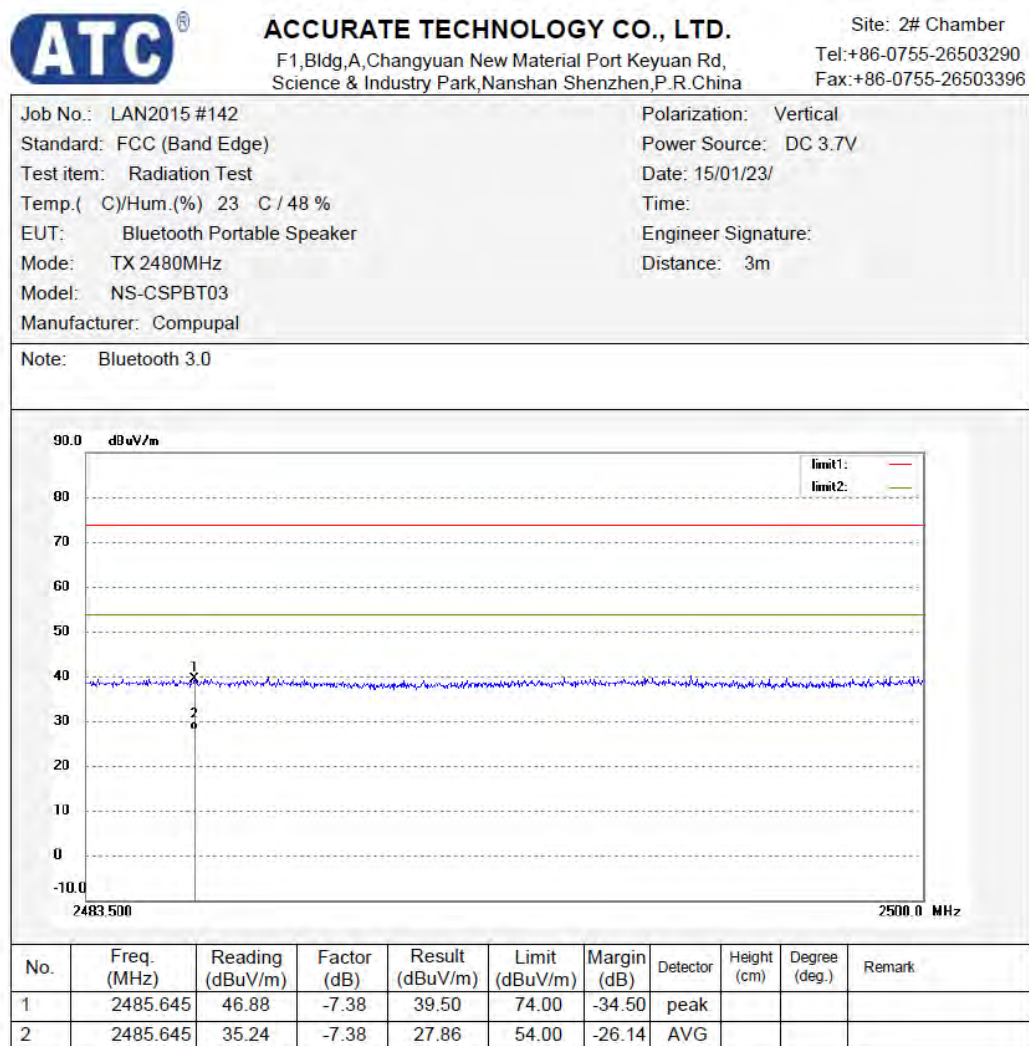


Figure 53: Test figure of Radiated emissions in restricted bands, Mode B.1, Horizontal

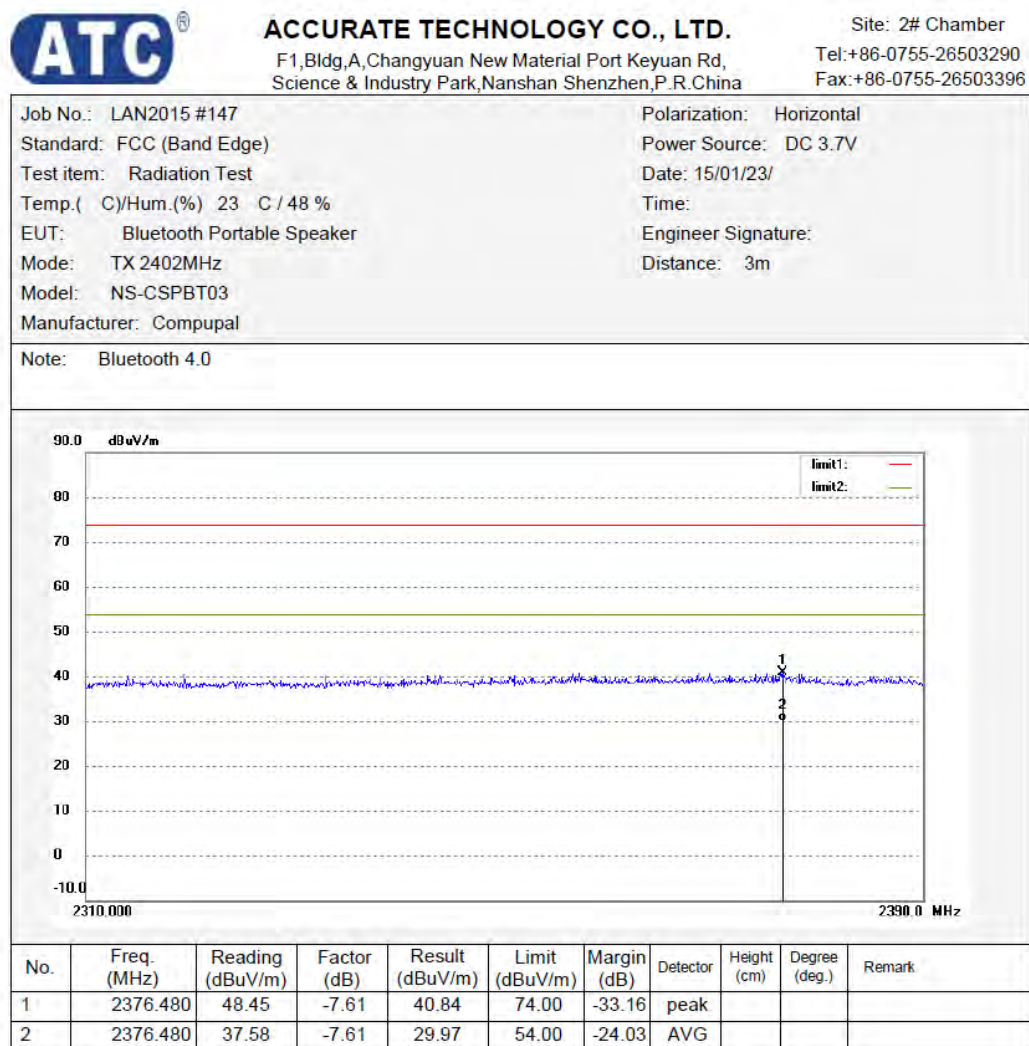


Figure 54: Test figure of Radiated emissions in restricted bands, Mode B.1, Vertical

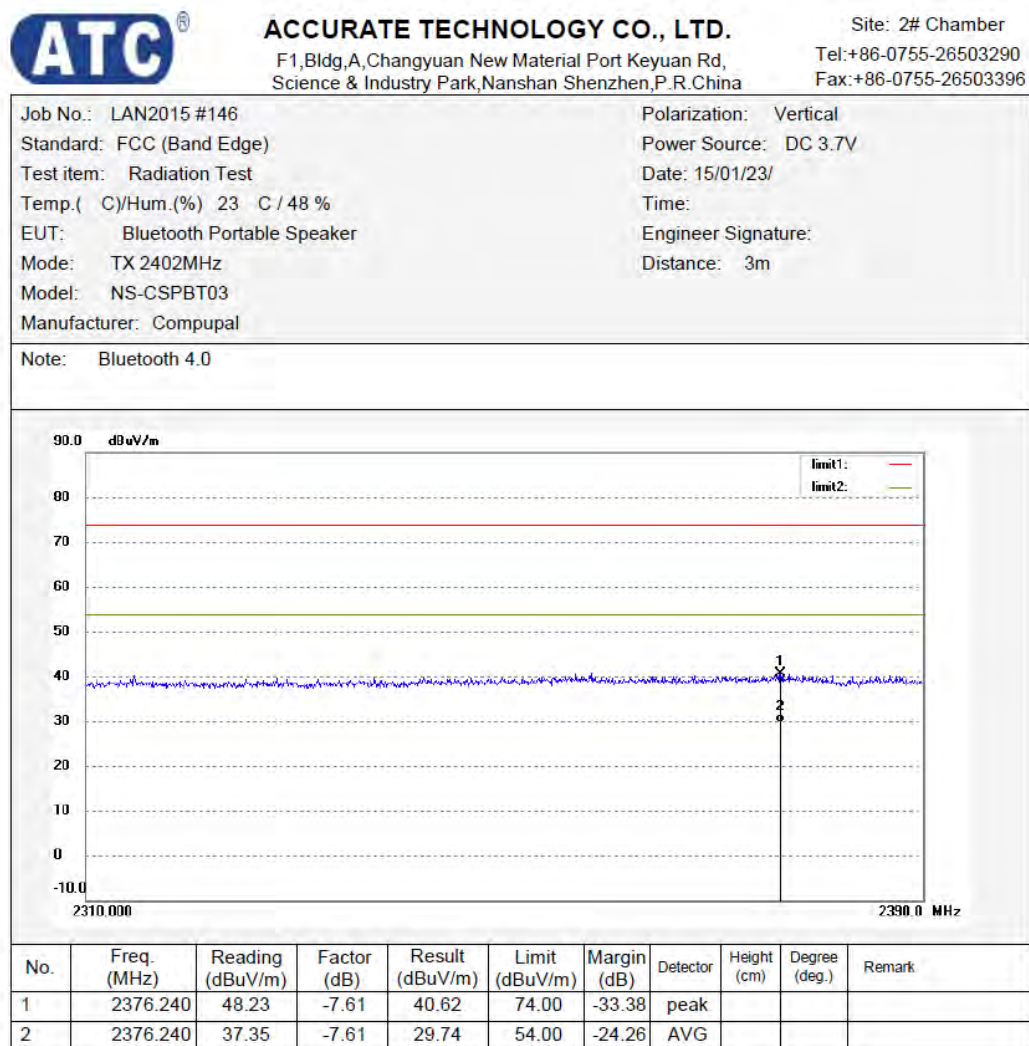


Figure 55: Test figure of Radiated emissions in restricted bands, Mode B.3, Horizontal

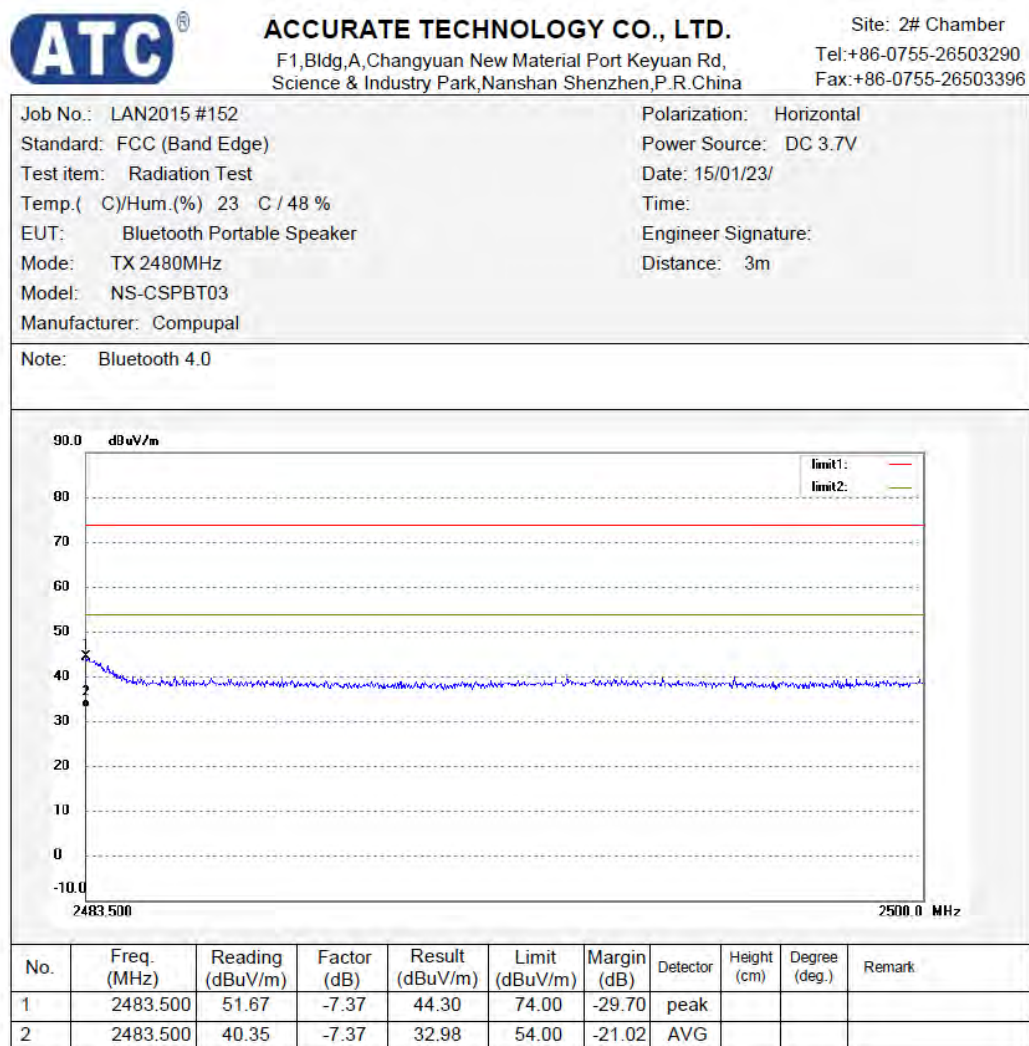


Figure 56: Test figure of Radiated emissions in restricted bands, Mode B.3, Vertical

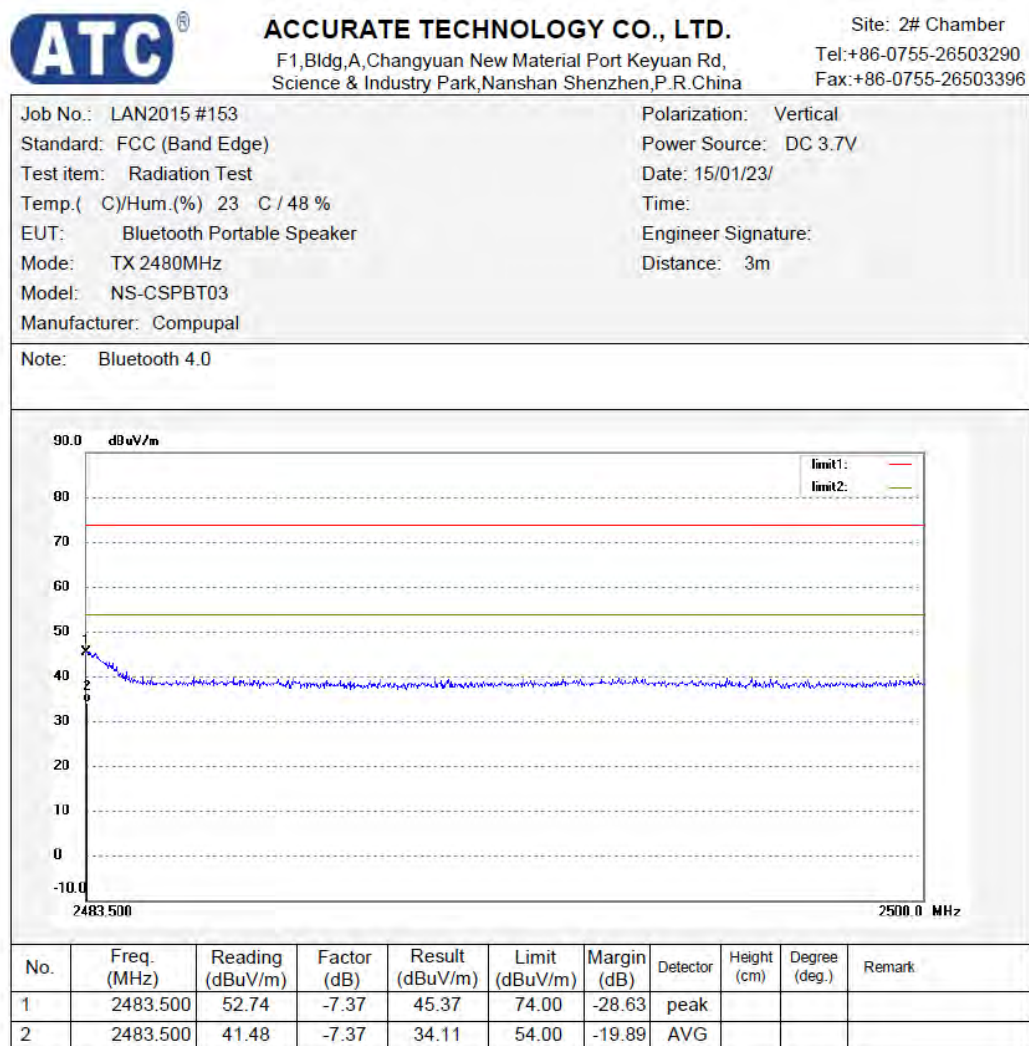


Figure 57: Test figure of Conducted emissions, model NS-CSPBT02, Mode C, line live

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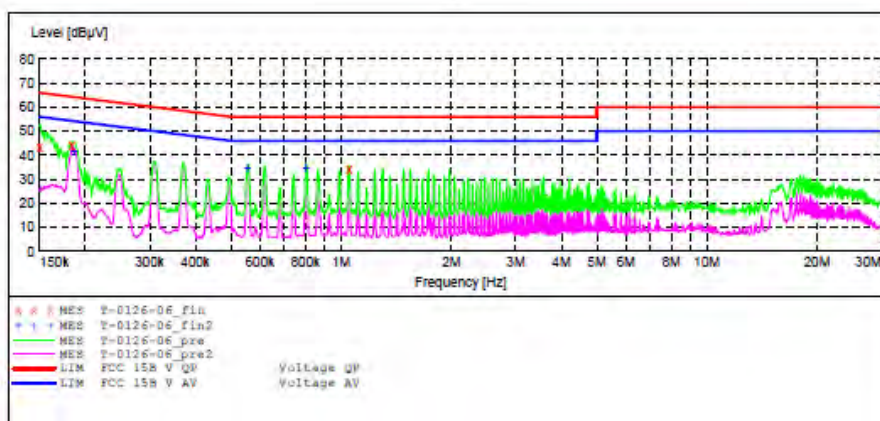
CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Portable Speaker M/N: NS-CSPBT02
Manufacturer: Compupal
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: L 120V/60Hz
Comment: Mains Port
Start of Test: 1/26/2015 /

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	0.8 %	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
Average						



MEASUREMENT RESULT: "T-0126-06_fin"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.150000	43.40	11.0	66	22.6	QP	L1	GND
0.183870	43.80	11.2	64	20.6	QP	L1	GND
1.052309	34.40	11.8	56	21.6	QP	L1	GND

MEASUREMENT RESULT: "T-0126-06_fin2"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.186085	42.10	11.2	54	12.1	AV	L1	GND
0.555583	35.00	12.0	46	11.0	AV	L1	GND
0.802141	34.70	11.9	46	11.3	AV	L1	GND

Figure 58: Test figure of Conducted emissions, model NS-CSPBT02, Mode C, line neutral

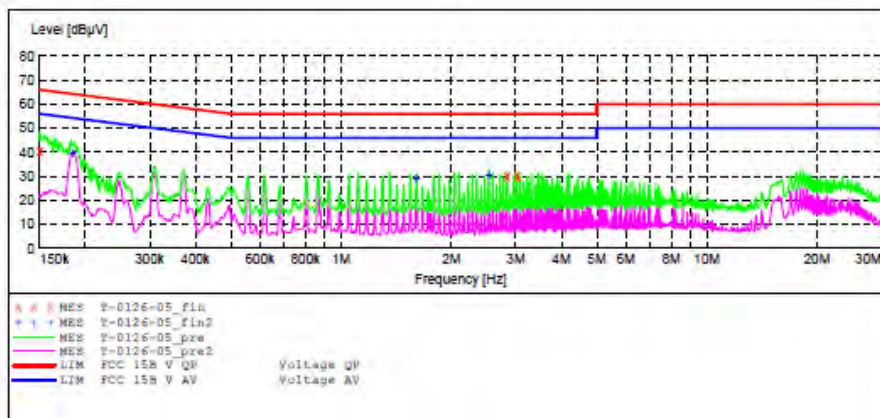
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Portable Speaker M/N: NS-CSPBT02
Manufacturer: Compupal
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: N 120V/60Hz
Comment: Mains Port
Start of Test: 1/26/2015 /

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
Average



MEASUREMENT RESULT: "T-0126-05_fin"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.150000	40.20	11.0	66	26.8	QP	N	GND
2.843398	29.70	11.6	56	26.3	QP	N	GND
3.030938	29.80	11.6	56	26.2	QP	N	GND

MEASUREMENT RESULT: "T-0126-05_fin2"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.184605	39.70	11.2	54	14.6	AV	N	GND
1.606633	29.30	11.7	46	16.7	AV	N	GND
2.532561	30.30	11.6	46	15.7	AV	N	GND

Figure 59: Test figure of Conducted emissions, model NS-CSPBT03, Mode C, line live

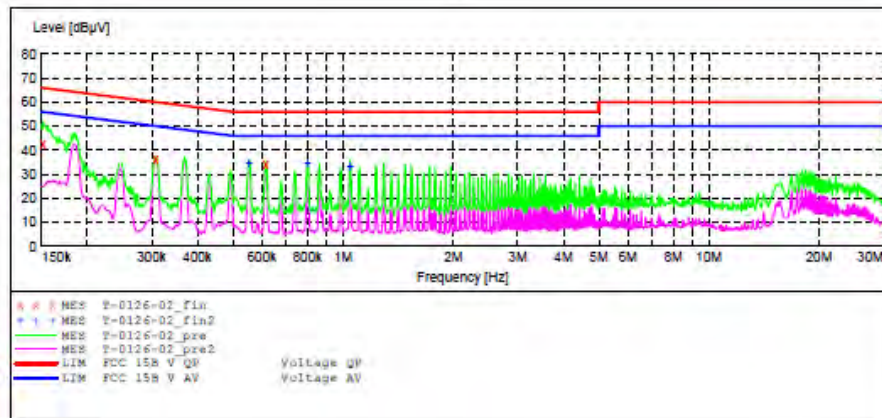
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Portable Speaker M/N: NS-CSPBT03
Manufacturer: Compupal
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: L 120V/60Hz
Comment: Mains Port
Start of Test: 1/26/2015 /

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
Average



MEASUREMENT RESULT: "T-0126-02_fin"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.151202	42.50	11.0	66	23.4	QP	L1	GND
0.306497	36.10	11.6	60	24.0	QP	L1	GND
0.613892	33.80	11.9	56	22.2	QP	L1	GND

MEASUREMENT RESULT: "T-0126-02_fin2"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.553370	34.70	12.0	46	11.3	AV	L1	GND
0.798945	34.50	11.9	46	11.5	AV	L1	GND
1.043940	33.50	11.8	46	12.5	AV	L1	GND

Figure 60: Test figure of Conducted emissions, model NS-CSPBT03, Mode C, line neutral

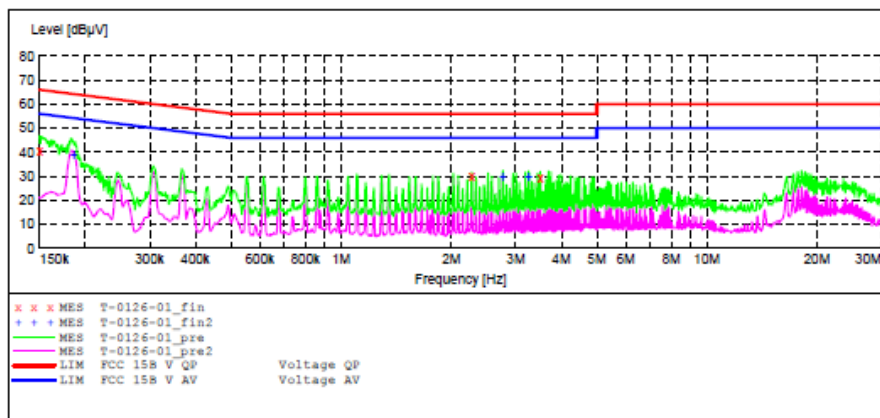
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Portable Speaker M/N: NS-CSPBT03
Manufacturer: Compupal
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: N 120V/60Hz
Comment: Mains Port
Start of Test: 1/26/2015 /

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
Average



MEASUREMENT RESULT: "T-0126-01_fin"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.150000	40.20	11.0	66	25.8	QP	N	GND
2.274000	30.10	11.6	56	25.9	QP	N	GND
3.502500	29.10	11.5	56	26.9	QP	N	GND

MEASUREMENT RESULT: "T-0126-01_fin2"

1/26/2015

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	FE
0.186000	39.30	11.2	54	14.9	AV	N	GND
2.769000	29.60	11.6	46	16.4	AV	N	GND
3.259500	29.90	11.5	46	16.1	AV	N	GND

Figure 61: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Below 1GHz, Horizontal

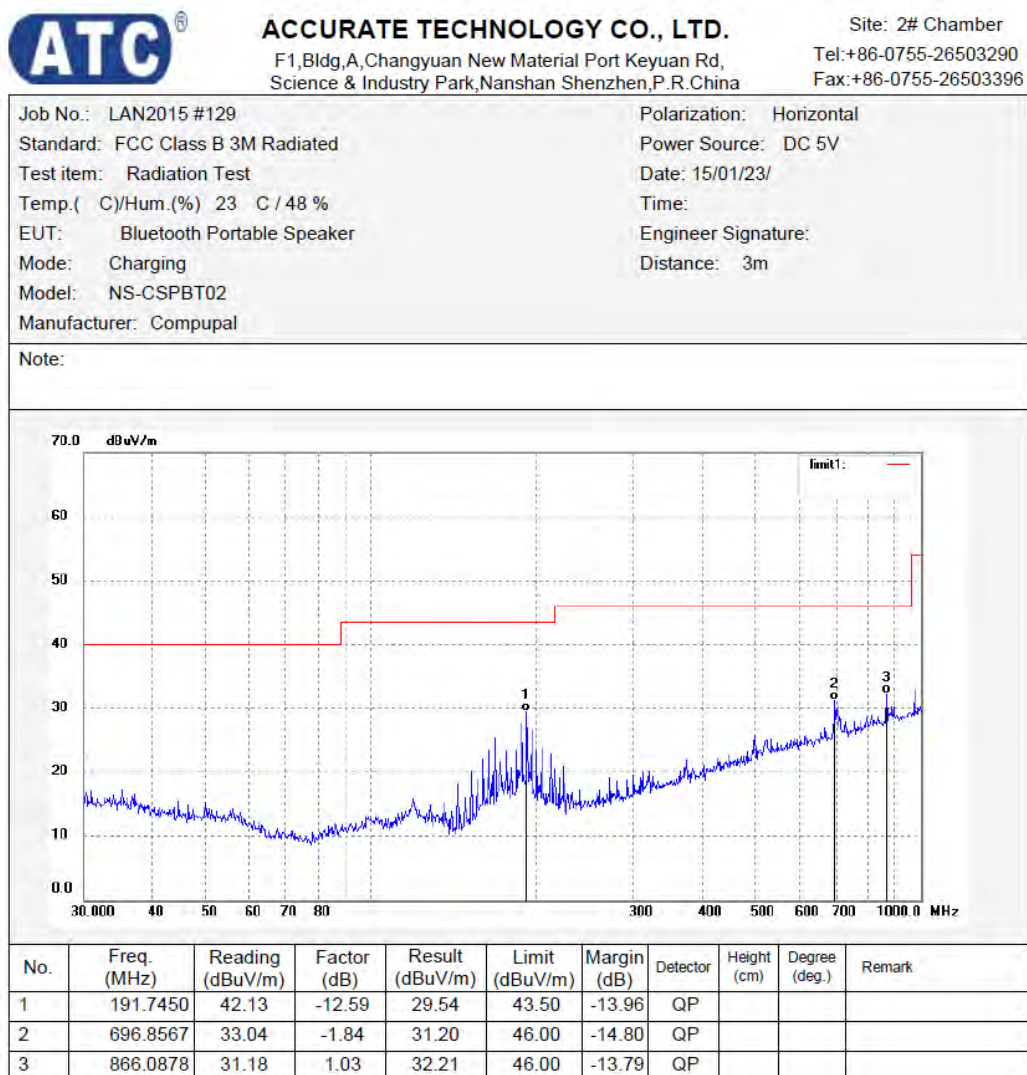


Figure 62: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Below 1GHz, Vertical

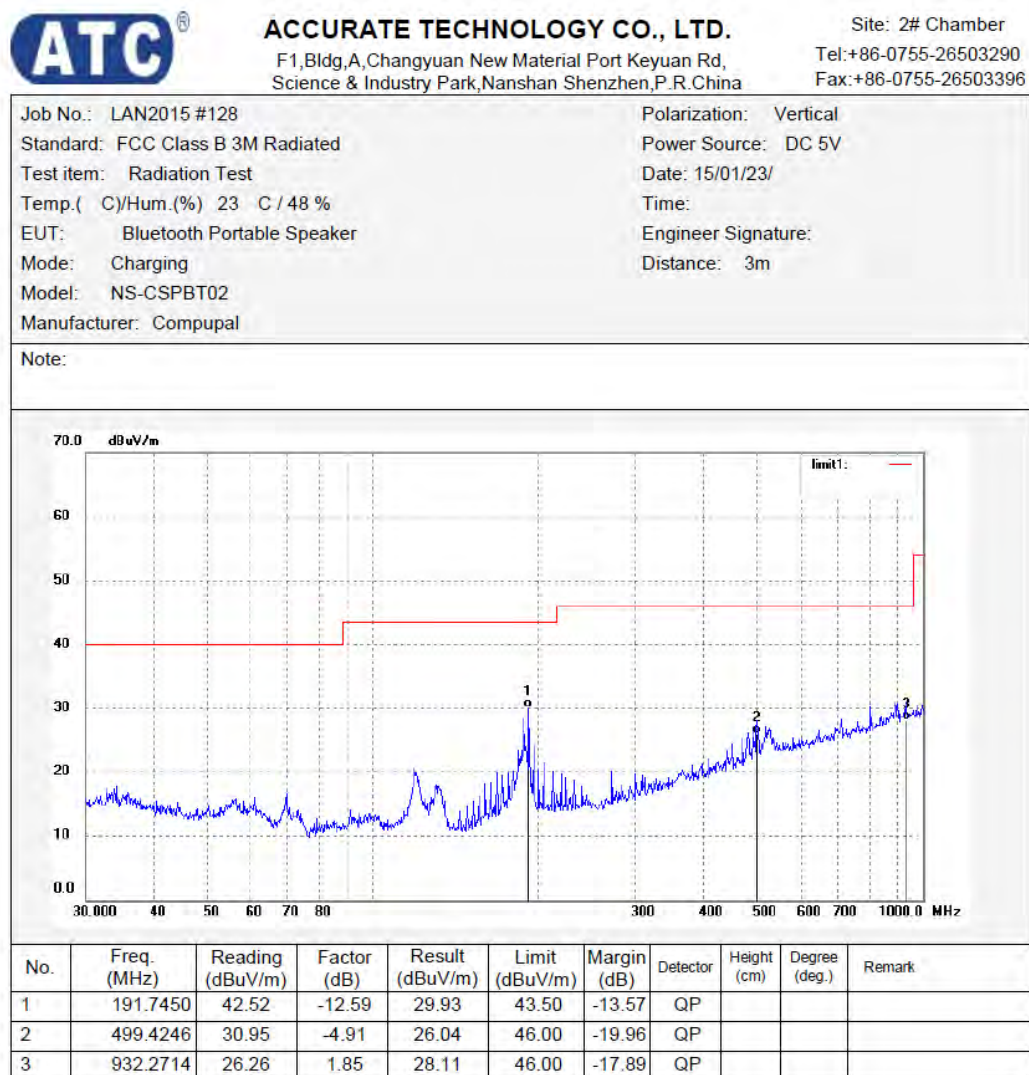


Figure 63: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Above 1GHz, Horizontal

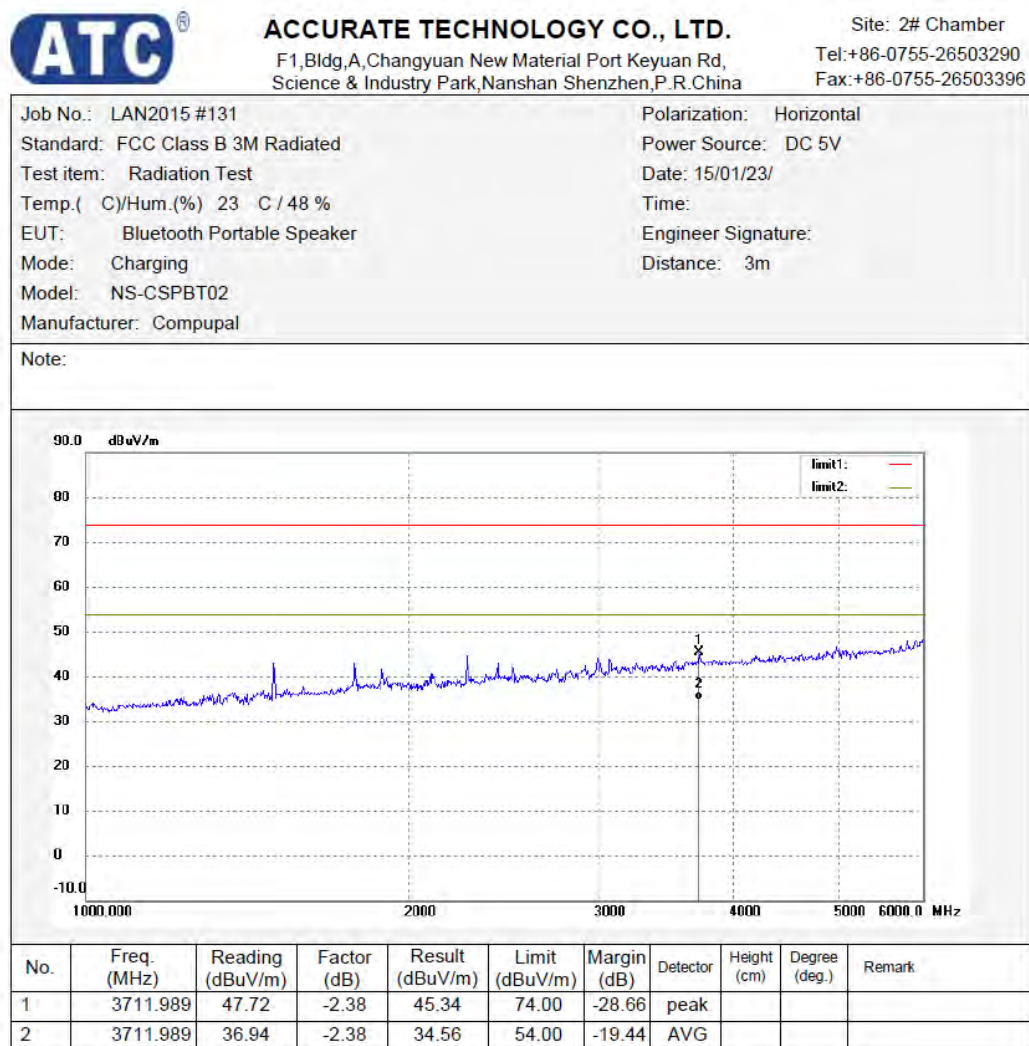


Figure 64: Test figure of Radiated emissions, model NS-CSPBT02, Mode C, Above 1GHz, Vertical

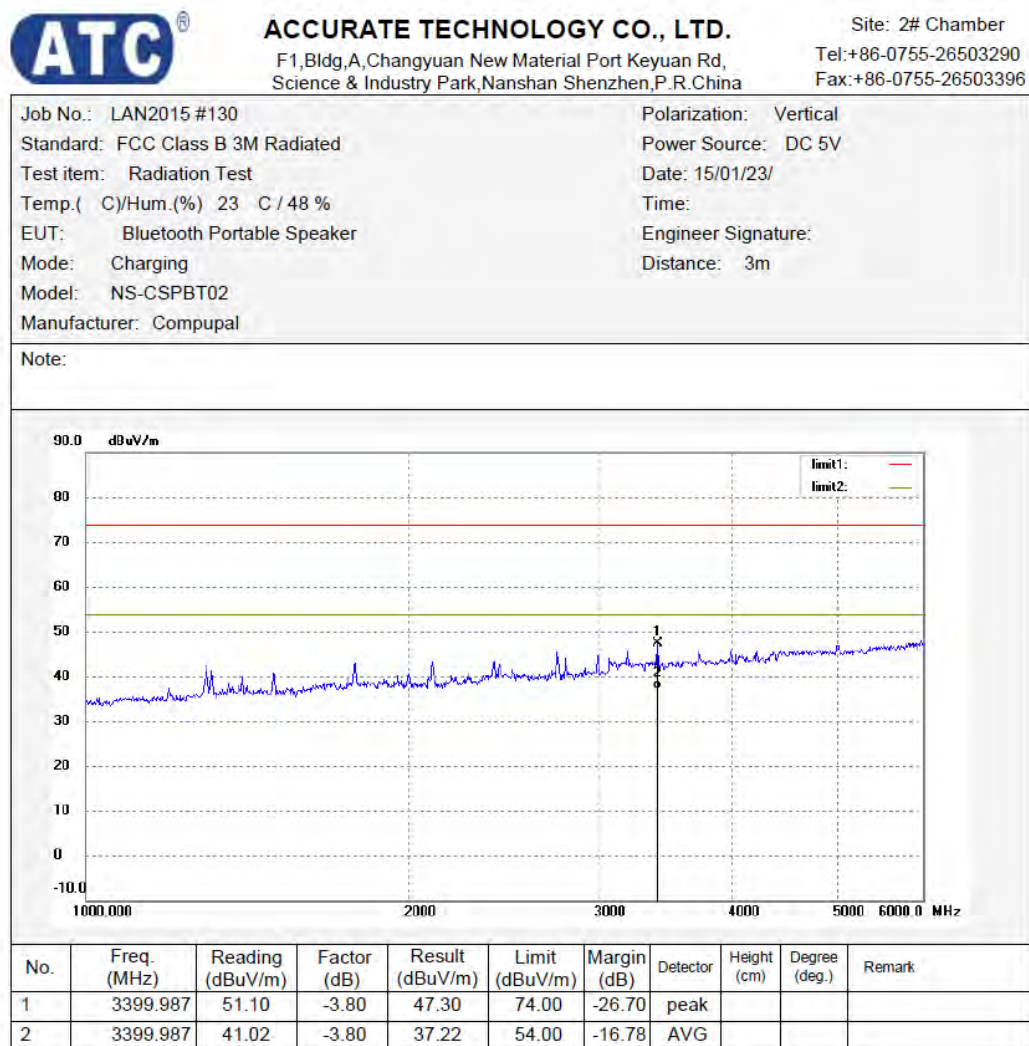


Figure 65: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Below 1GHz, Horizontal

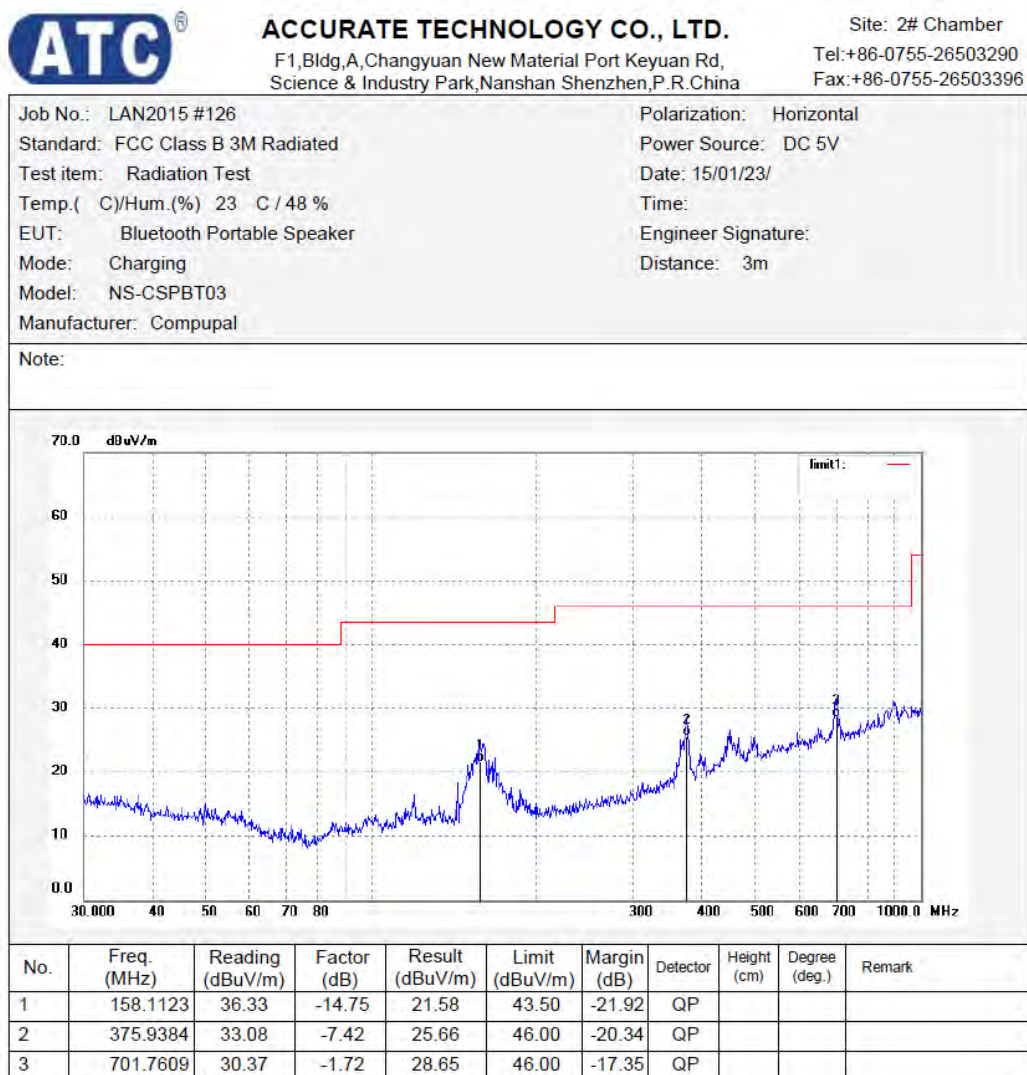


Figure 66: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Below 1GHz, Vertical

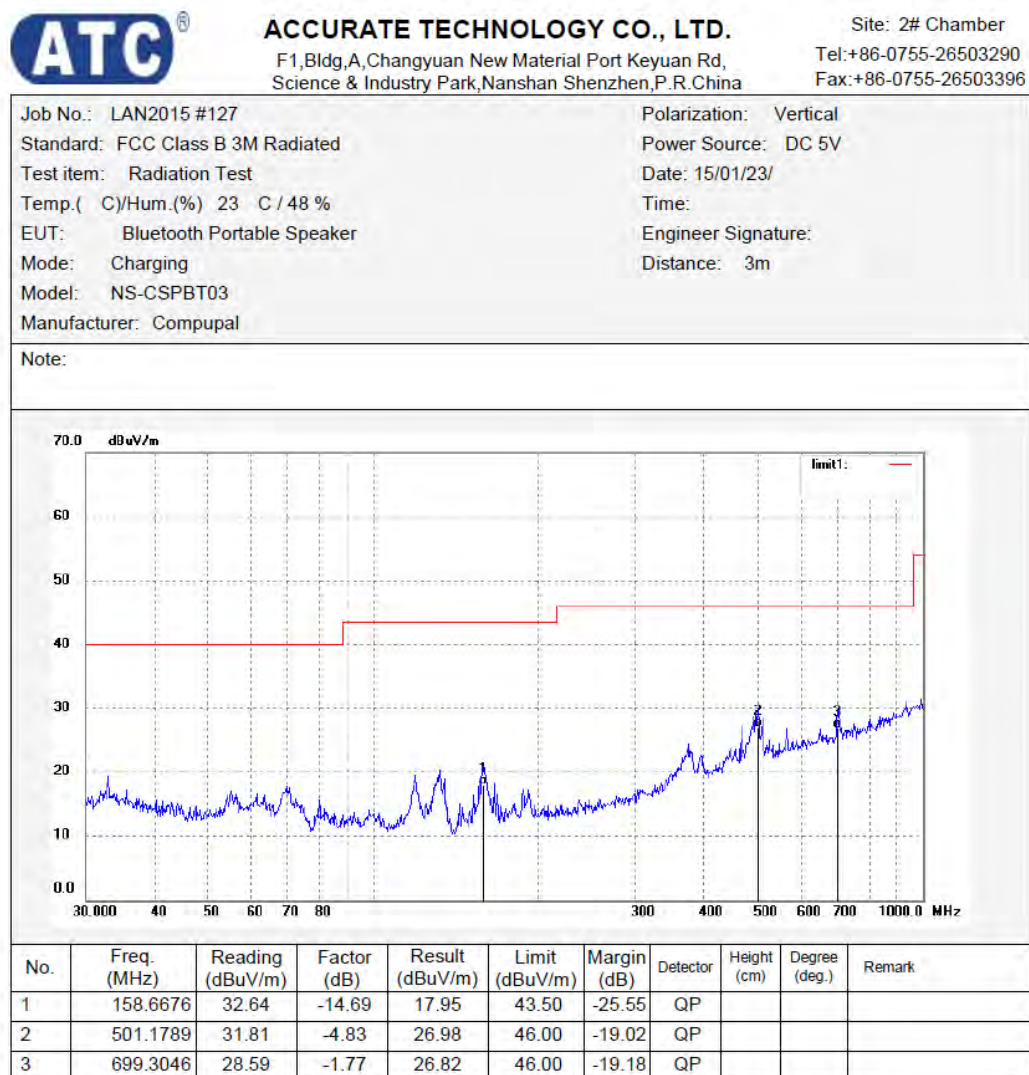


Figure 67: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Above 1GHz, Horizontal

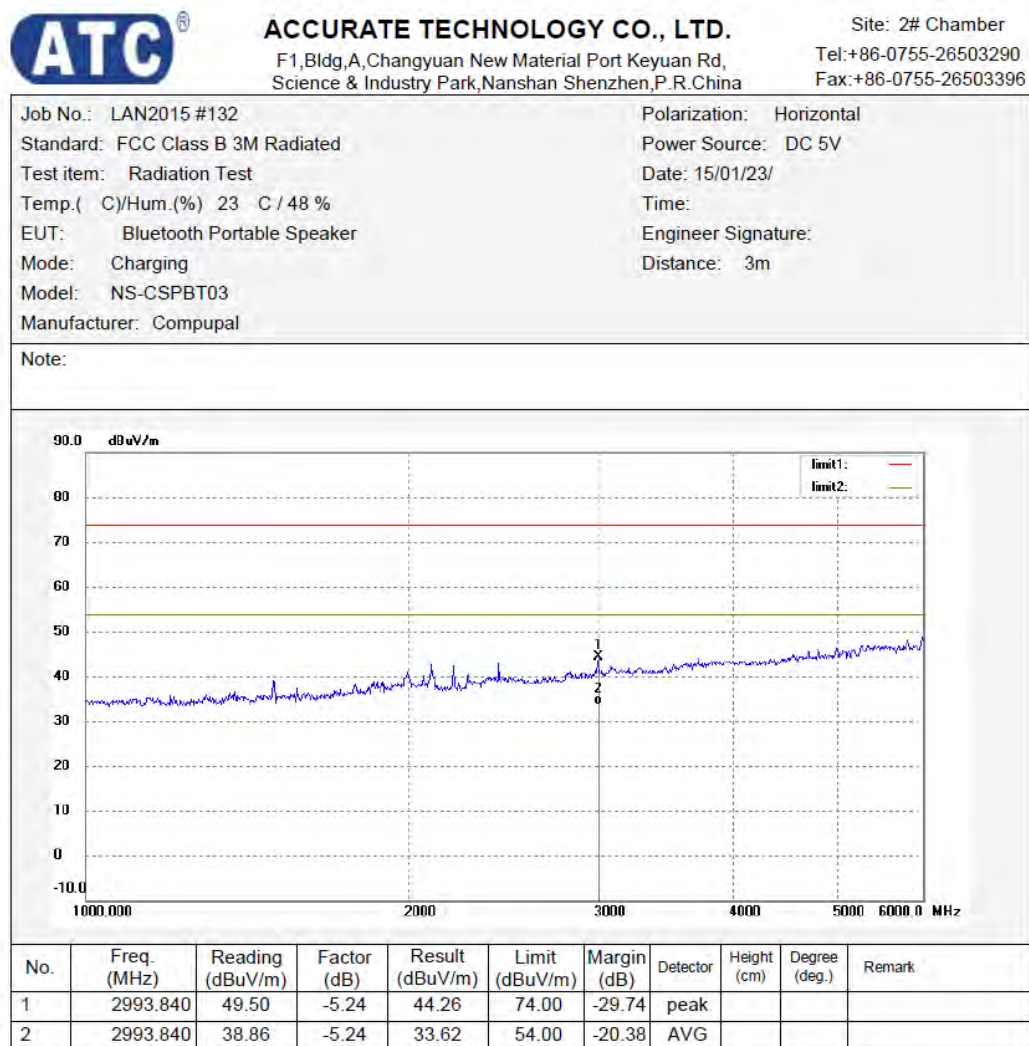


Figure 68: Test figure of Radiated emissions, model NS-CSPBT03, Mode C, Above 1GHz, Vertical

