


Prüfbericht-Nr.: <i>Test Report No.:</i>	50050558 001	Auftrags-Nr.: <i>Order No.:</i>	164065363	Seite 1 von 28 <i>Page 1 of 28</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	476223	Auftragsdatum: <i>Order date:</i>	29.06.2016	
Auftraggeber: <i>Client:</i>	SHENZHEN FENDA TECHNOLOGY CO., LTD. Fenda Hi-Tech Park, Zhoushi Road, Shiyao Town, Baoan District, Shenzhen City, Guangdong, China			
Prüfgegenstand: <i>Test item:</i>	Bluetooth Shelf Speakers			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	NS-HBTSS116			
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 FCC KDB Publication 447498 v06 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109 RSS-247 Issue 1 May 2015 RSS-102 Issue 5 March 2015 RSS-Gen Issue 4 November 2014			
Wareneingangsdatum: <i>Date of receipt:</i>	29.06.2016			
Prüfmuster-Nr.: <i>Test sample No.:</i>	N/A			
Prüfzeitraum: <i>Testing period:</i>	23.06.2016 - 30.06.2016			
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:			
21.07.2016 Datum <i>Date</i>	Winnie Hou / Senior Project Manager Name / Stellung <i>Name / Position</i>	23.07.2016 Datum <i>Date</i>	Owen Tian / Technical Certifier Name / Stellung <i>Name / Position</i>	
	Unterschrift <i>Signature</i>		Unterschrift <i>Signature</i>	
Sonstiges / Other:	FCC ID: HBONSHBTSS116, IC: 10550A-NSHBTSS116			
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 P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<p>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.</p> <p><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></p>				

v04

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT*RESULT: Passed***5.1.2 PEAK OUTPUT POWER***RESULT: Passed***5.1.3 99% BANDWIDTH***RESULT: Passed***5.1.4 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100KHZ BANDWIDTH***RESULT: Passed***5.1.5 SPURIOUS EMISSION***RESULT: Passed***5.1.6 20dB BANDWIDTH***RESULT: Passed***5.1.7 FREQUENCY SEPARATION***RESULT: Passed***5.1.8 NUMBER OF HOPPING FREQUENCY***RESULT: Passed***5.1.9 TIME OF OCCUPANCY***RESULT: Passed***5.1.10 CONDUCTED EMISSIONS***RESULT: Passed***5.1.11 RADIATED EMISSION***RESULT: Passed*

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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

Error! Reference source not found.

Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen Guangdong, China

FCC Registration No.: 406365

Test site Industry Canada No.: 4480A-2

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				
EMI Test Receiver	R&S	ESU	1302.6005.2 6	2017-05-17
Loop Antenna	Schwarzbeck	FMZB 1519	1519-012	2017-05-17
Pre-Amplifier	HP	8447F	2944A07999	2017-05-17
Bilog Antenna	Schwarzbeck	VULB9163	142	2017-05-17
Pre-Amplifier	A.H.	PAM-0126	1415261	2017-05-17
Horn Antenna	Schwarzbeck	BBHA 9120	707	2017-05-17
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA91703 99	2017-05-17
Radio Spectrum Test				
Spectrum Analyzer	R&S	FSV40	132.1- 3008K39- 100967-AP	2017-05-17
Spectrum Analyzer	Agilent	E4407B	88156318	2017-05-17
Spectrum Analyzer	Agilent	N9010A	My53470879	2017-05-17
Conducted Emission				
Test Receiver	R&S	ESCI	26115-010- 0027	2017-05-17
L.I.S.N.	R&S	ENV216	101161	2017-05-17
50Ω Coaxial Switch	Anritsu	MP59B	6100175589	2017-05-17
Voltage Probe	R&S	ESH2-Z3	100122	2017-05-17

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 EUT is Bookshelf speaker with Bluetooth function.
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:	Bluetooth Shelf Speakers
Type Designation:	NS-HBTSS116
FCC ID	HBONSHBTSS116
IC	10550A-NSHBTSS116

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

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	3.0
Channel Number	79 channels
Channel separation	1MHz
Extreme Temperature Range	-10°C to +50°C
Operation Voltage	AC120V 60Hz
Modulation	GFSK, 8DPSK, $\pi/4$ DQPSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	2dBi
RF Output Power	0.00119W (0.74dBm)

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		

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth mode (BDR & EDR)
 - 1. Transmitting on low channel
 - 2. Transmitting on middle channel
 - 3. Transmitting on high channel
- B. On, Bluetooth hopping mode
- C. Play with Aux
- D. Play with RCA
- E. 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: 2014 and ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested with following accessories:

Description	Manufacturer	Type	S/N
Iphone5C	Apple	A1526	N/A
Adapter	SIMSUKIAN	SK22G-0500200U	N/A
Adapter	TPT	MIL050150U	N/A

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 (Below 1GHz)

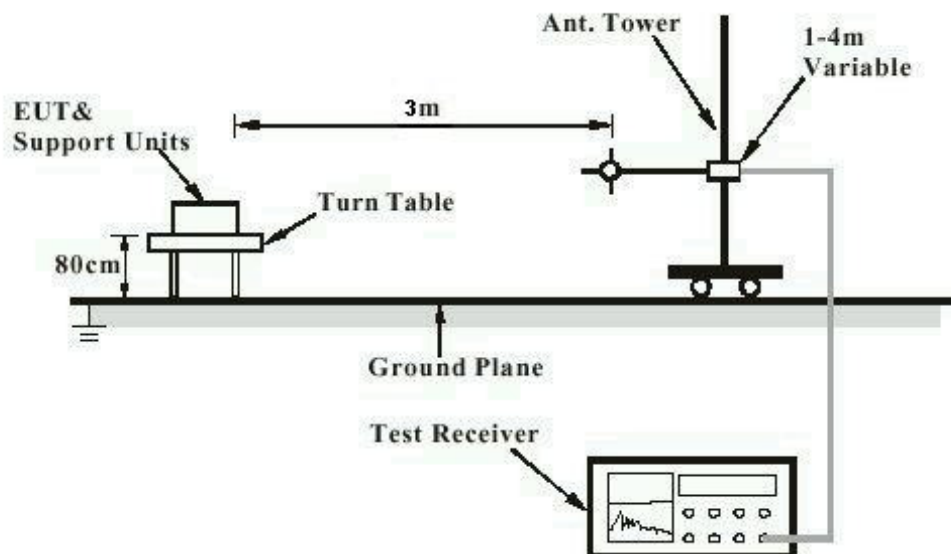


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

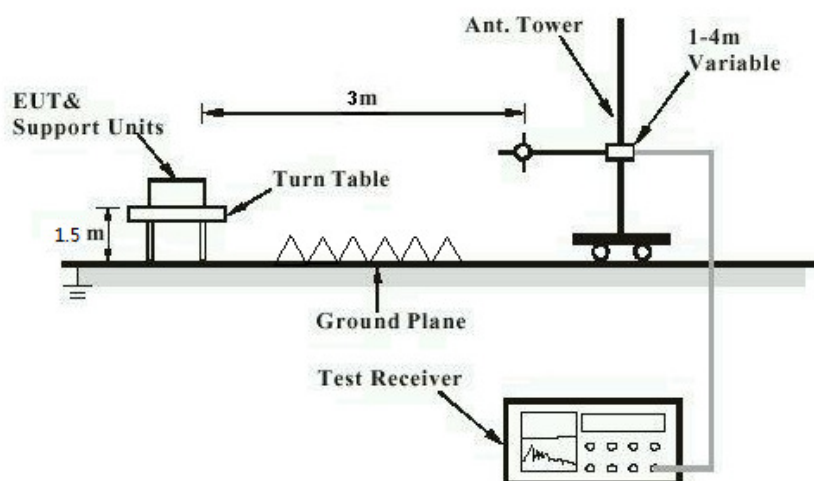


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

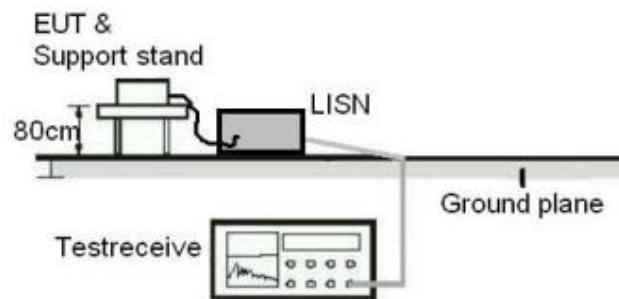
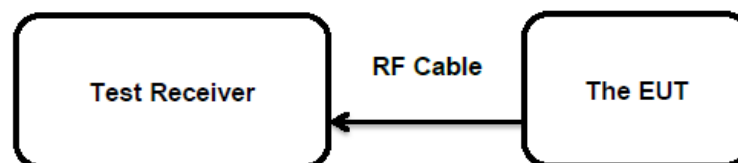


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Passed**

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen 6.7
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 2dBi, 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 : 2016-06-25
 Test standard : FCC Part 15.247(b)(1)
 : RSS-247 Clause 5.4(2)
 Basic standard : ANSI C63.10: 2013
 Limit : FHSS < 0.125 Watts
 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 5: Test result of Peak Output Power

Test Mode	Channel Frequency (MHz)	Measured Peak Output Power		Limit (W)
		(dBm)	(W)	
BDR	2402	0.41	0.00110	< 0.125
	2441	0.74	0.00119	
	2480	-0.44	0.00090	
EDR	2402	-1.08	0.00078	< 0.125
	2441	-0.88	0.00082	
	2480	-2.25	0.00060	

Note: The cable loss is taken into account in results.

5.1.3 99% Bandwidth

RESULT:
Passed

Date of testing : 2016-06-25
 Test standard : RSS-Gen clause 6.6
 Basic standard : ANSI C63.10: 2013
 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 6: Test result of 99% Bandwidth

Test Mode	Channel Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
BDR	2402	850.94	/
	2441	842.26	
	2480	842.26	
EDR	2402	1150.51	/
	2441	1146.16	
	2480	1146.16	

Note: The cable loss is taken into account in results.

5.1.4 Conducted spurious emissions measured in 100kHz Bandwidth

RESULT:**Passed**

Date of testing : 2016-06-25
Test standard : FCC part 15.247(d)
RSS-247 Clause 5.5
Basic standard : ANSI C63.10: 2013
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 Appendix 1, and compliance is achieved as well.

5.1.5 Spurious Emission

RESULT:**Passed**

Date of testing	:	2016-06-25 to 2016.06.30
Test standard	:	FCC part 15.247(d) FCC Part 15.205 RSS-247 Clause 3.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Table 4 & Table 5
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.

5.1.10 Conducted emissions

RESULT:**Passed**

Date of testing : 2016-06-23
Test standard : FCC Part 15.107(a) & FCC Part 15.207(a)
RSS-Gen Clause 8.8
Basic standard : ANSI C63.10: 2013 & ANSI C63.4: 2014
Frequency range : 0.15 – 30MHz
Limits : FCC Part 15.207(a) & FCC Part 15.207(a)
RSS-Gen Table 3
Kind of test site : Shield room

Test setup

Input Voltage : AC 120V, 60Hz via AC/DC Adapter
Operation Mode : B, C, D
Earthing : Not connected
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

For details refer to Appendix 1.

5.1.11 Radiated Emission

RESULT:**Passed**

Date of testing : 2016-06-23
Test standard : FCC Part 15.109(a) & FCC Part 15.209(a)
RSS-Gen 8.9
Basic standard : ANSI C63.4: 2014
Frequency range : 30 - 6000MHz
Classification : Class B
Limit : FCC Part 15.109(a) & FCC Part 15.209(a)
RSS-Gen Table 4
Kind of test site : 3m Semi-Anechoic Chamber

Test setup

Input Voltage : AC 120V, 60Hz via AC/DC Adapter
Operation mode : C, D
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.

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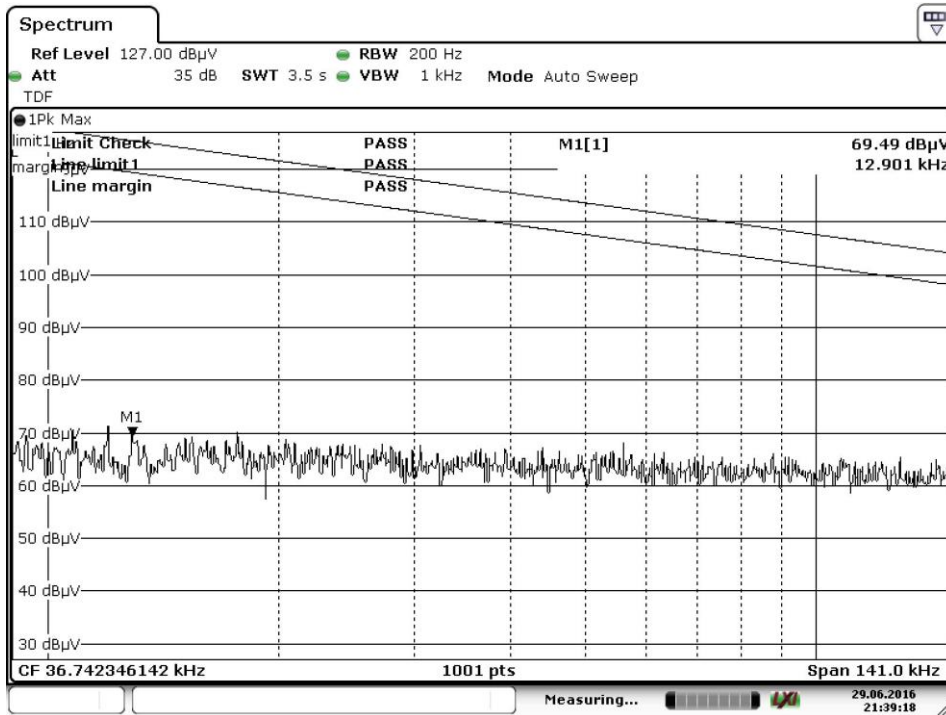
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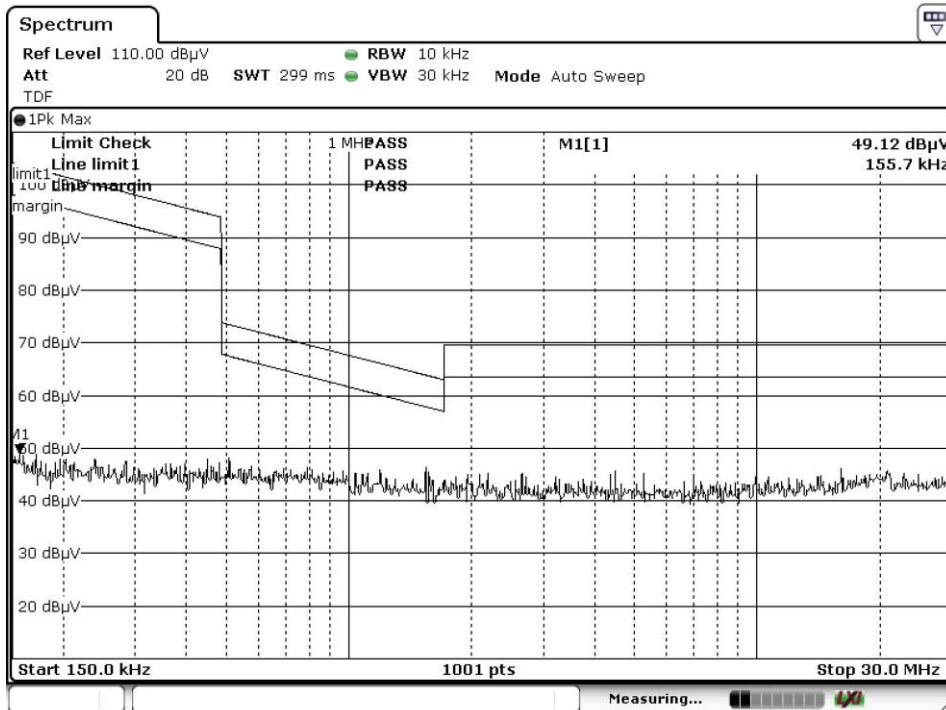
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Figure 1: Test figure of spurious emissions, mode A.1, Horizontal polarity (9kHz – 30MHz)

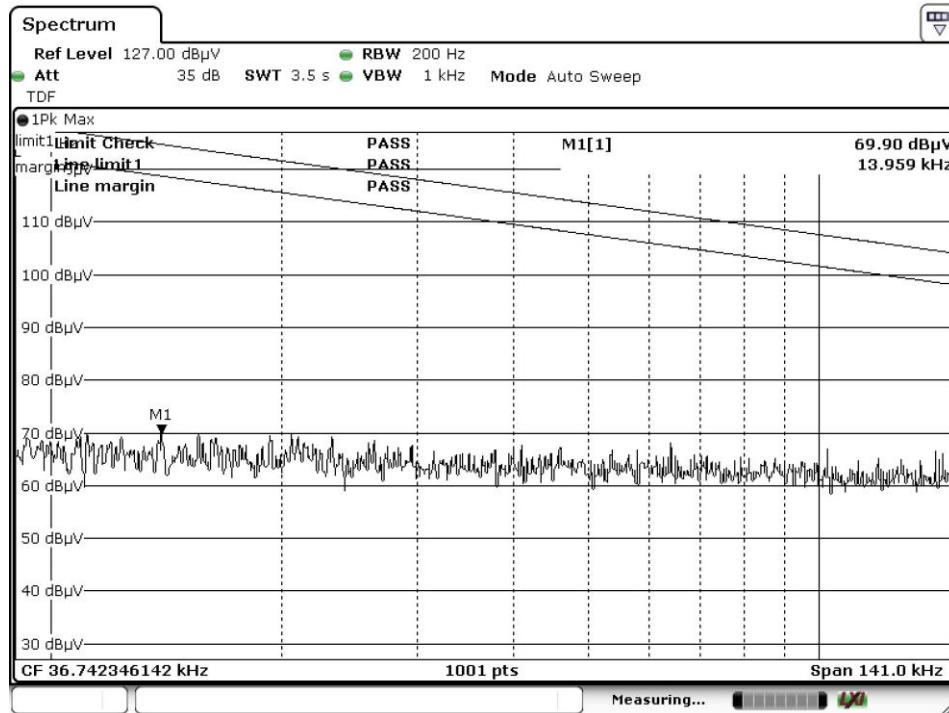


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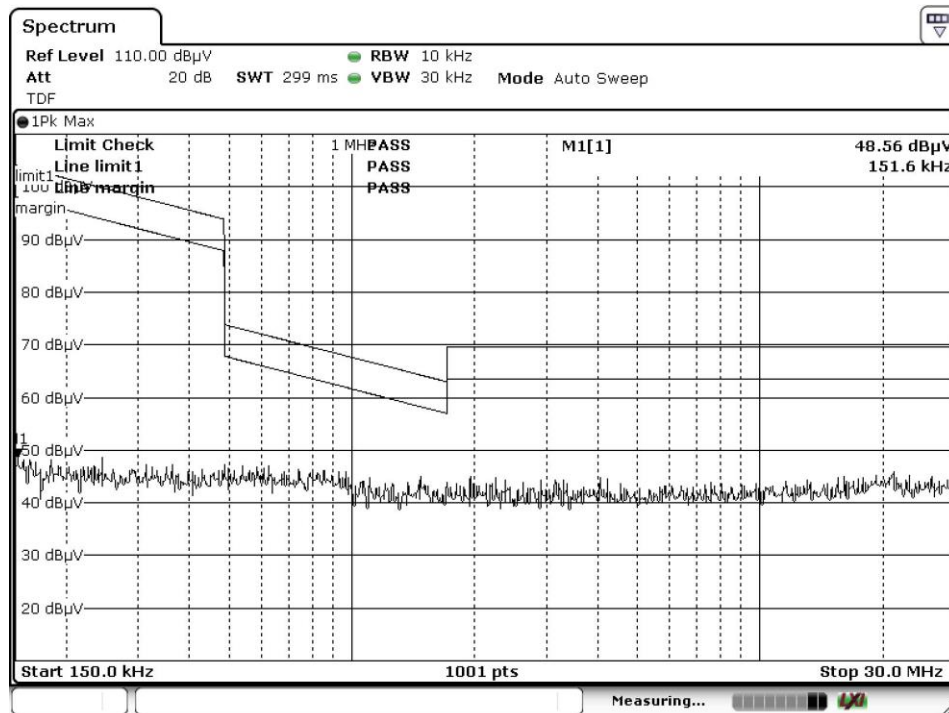


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Figure 2: Test figure of spurious emissions, mode A.1, Vertical polarity (9kHz – 30MHz)



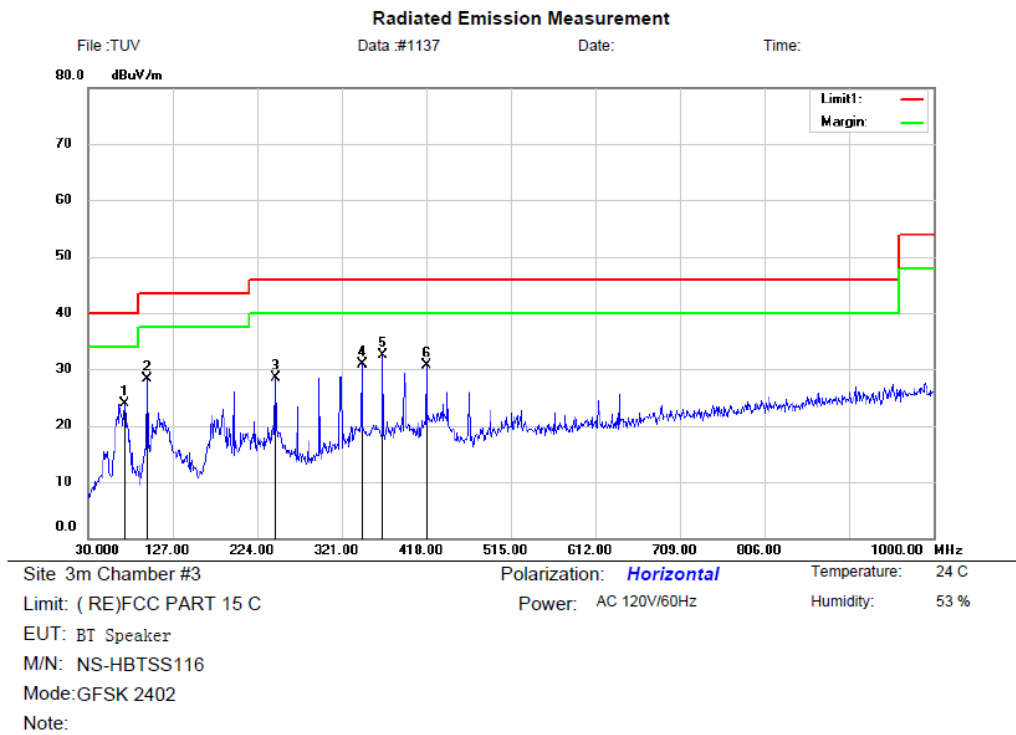
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Figure 3: Test figure of spurious emissions, mode A.1, Horizontal polarity (30MHz – 1GHz)

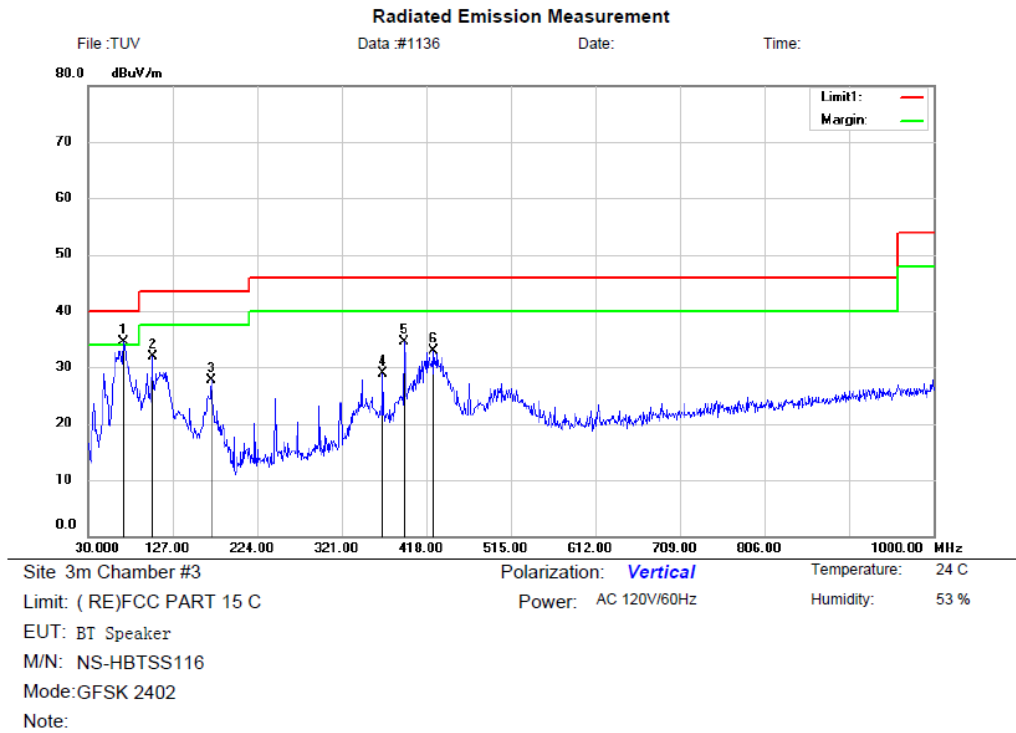
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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1	71.7100	42.13	-18.25	23.88	40.00	-16.12			QP	
2	97.9000	43.97	-15.65	28.32	43.50	-15.18			QP	
3	245.3400	42.26	-13.69	28.57	46.00	-17.43			QP	
4	344.2800	41.30	-10.37	30.93	46.00	-15.07			QP	
5 *	368.5300	42.94	-10.43	32.51	46.00	-13.49			QP	
6	418.0000	40.11	-9.38	30.73	46.00	-15.27			QP	

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


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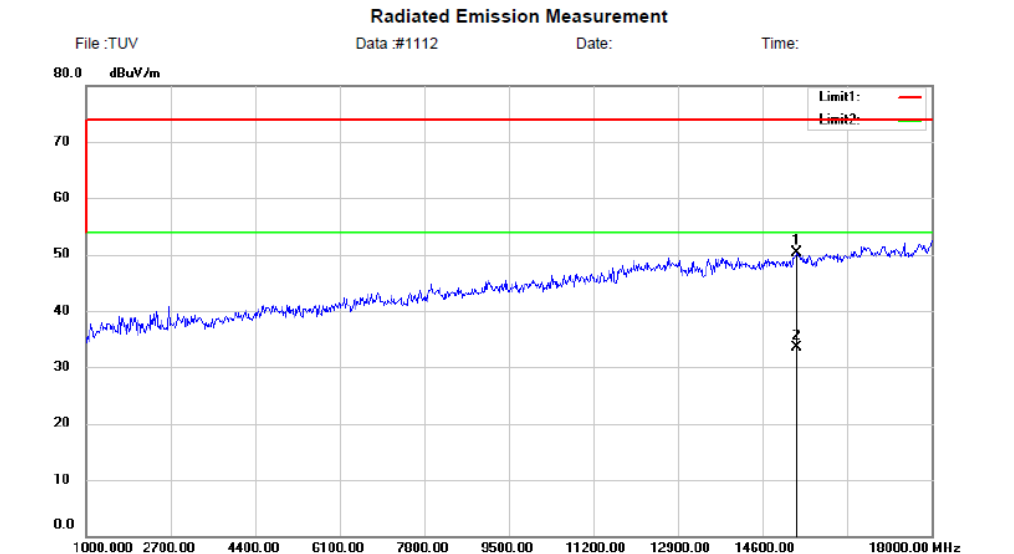


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	70.7400	52.58	-18.06	34.52	40.00	-5.48	QP		
2		103.7200	47.27	-15.30	31.97	43.50	-11.53	QP		
3		171.6200	44.82	-17.21	27.61	43.50	-15.89	QP		
4		368.5300	39.24	-10.43	28.81	46.00	-17.19	QP		
5		392.7800	44.12	-9.68	34.44	46.00	-11.56	QP		
6		426.7300	41.95	-9.13	32.82	46.00	-13.18	QP		

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

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Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:GFSK 2402
 Note:

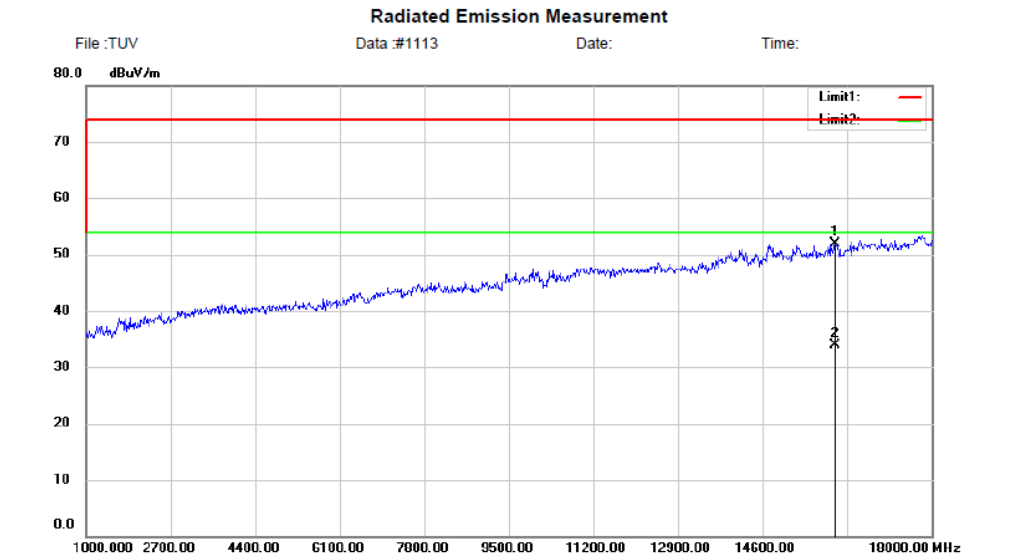
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	15297.00	47.57	2.70	50.27	74.00	-23.73	peak		
2 *	15297.00	30.80	2.70	33.50	54.00	-20.50	AVG		

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

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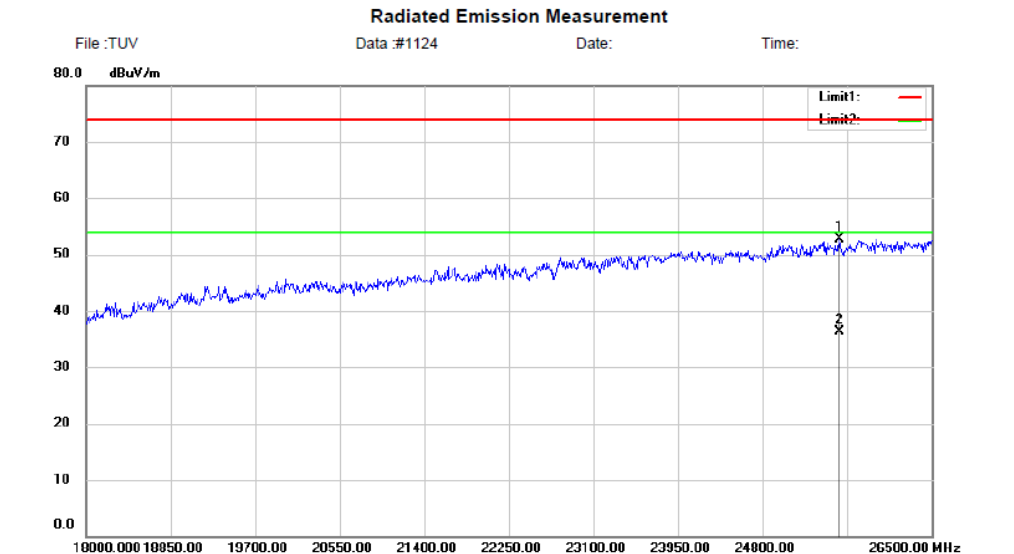
Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode:GFSK 2402
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	16062.00	51.52	0.41	51.93	74.00	-22.07	peak		
2 *	16062.00	33.49	0.41	33.90	54.00	-20.10	AVG		

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

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Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode: GFSK 2402
 Note:

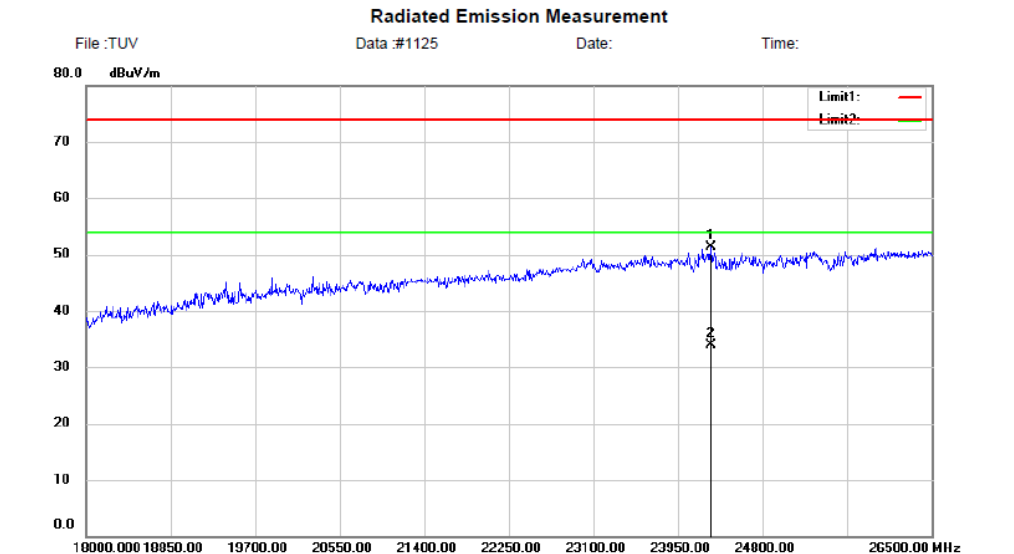
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure-ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	25573.50	88.94	-36.31	52.63	74.00	-21.37	peak	0	
2 *	25573.50	72.61	-36.31	36.30	54.00	-17.70	AVG	0	

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

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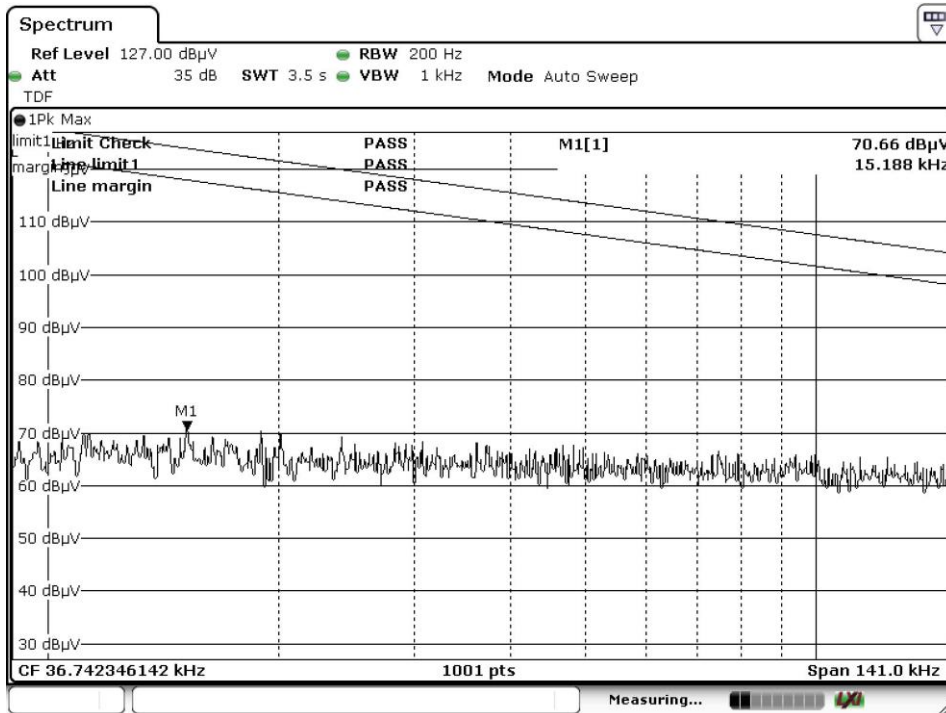
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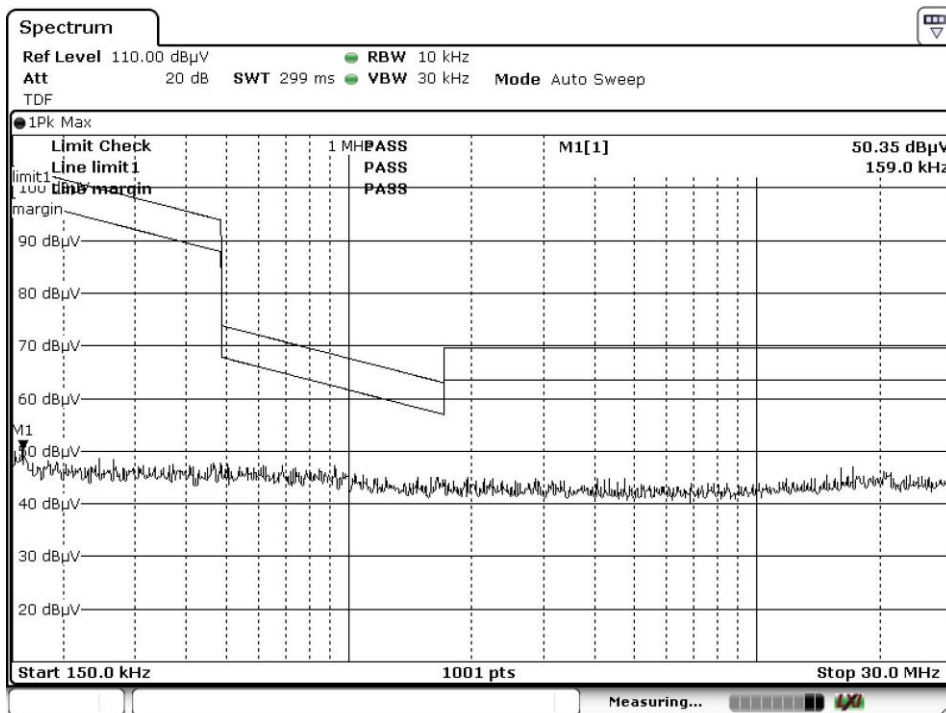
Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode: GFSK 2402
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1	24281.50	88.32	-37.10	51.22	74.00	-22.78			peak	
2 *	24281.50	71.00	-37.10	33.90	54.00	-20.10			AVG	

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

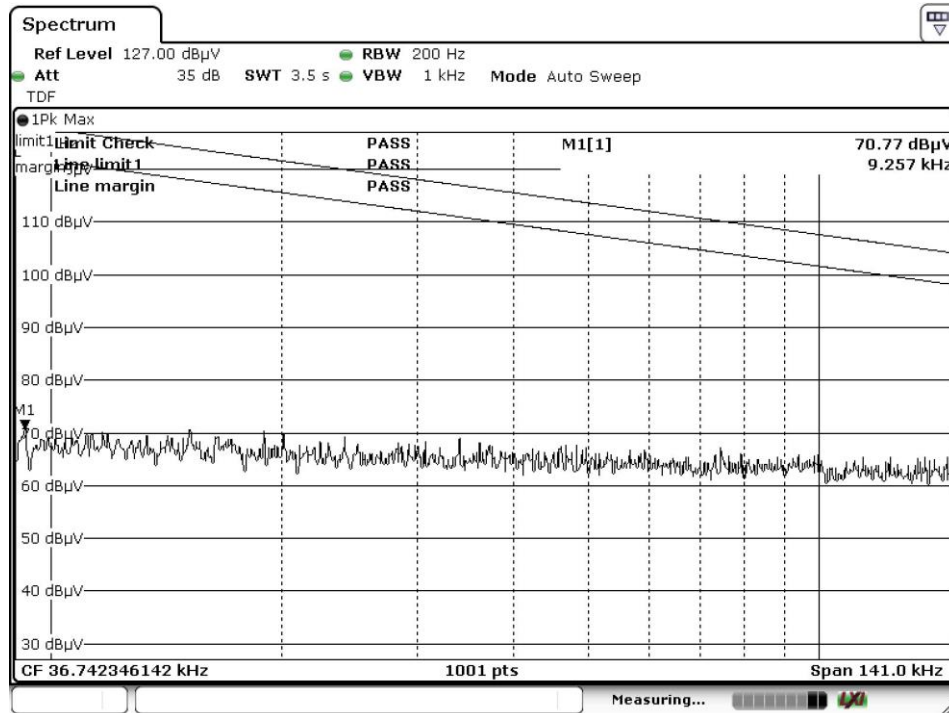


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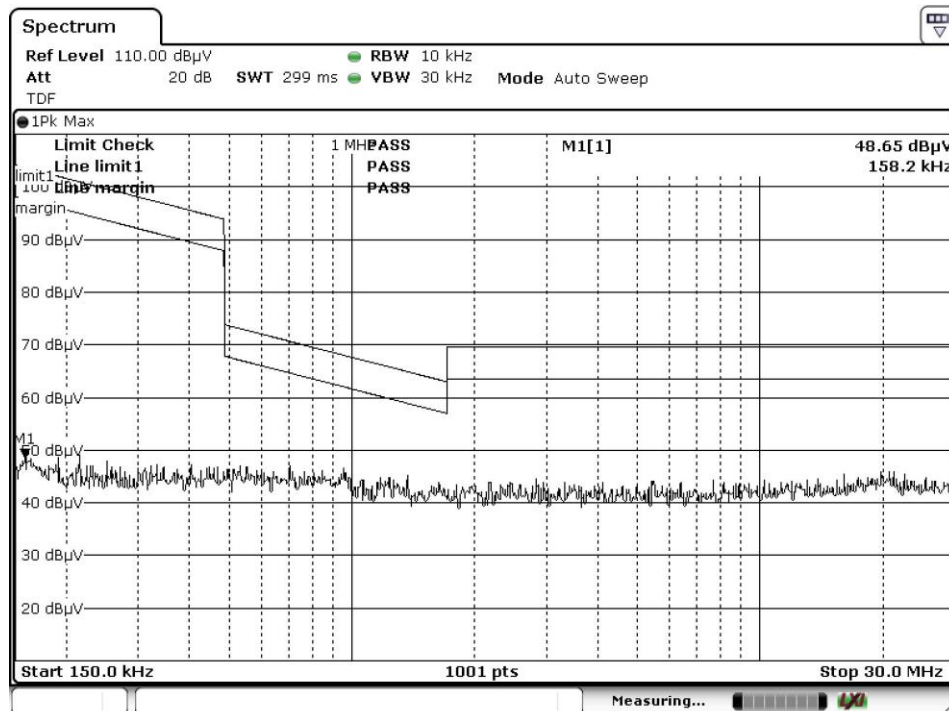


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Figure 10: Test figure of spurious emissions, mode A.2, Vertical polarity (9kHz – 30MHz)




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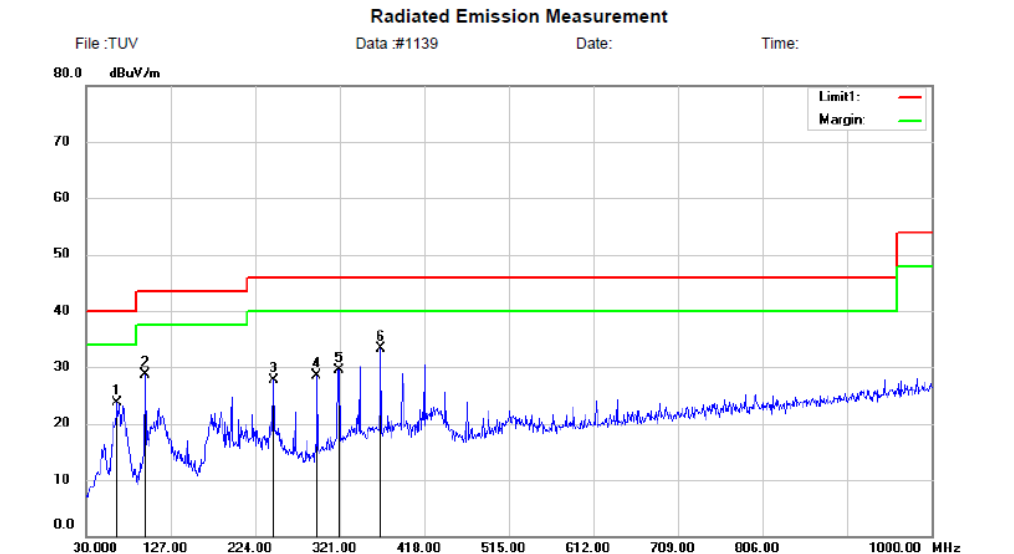
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Figure 11: Test figure of spurious emissions, mode A.2, Horizontal polarity (30MHz – 1GHz)

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Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode:GFSK 2441
Note:

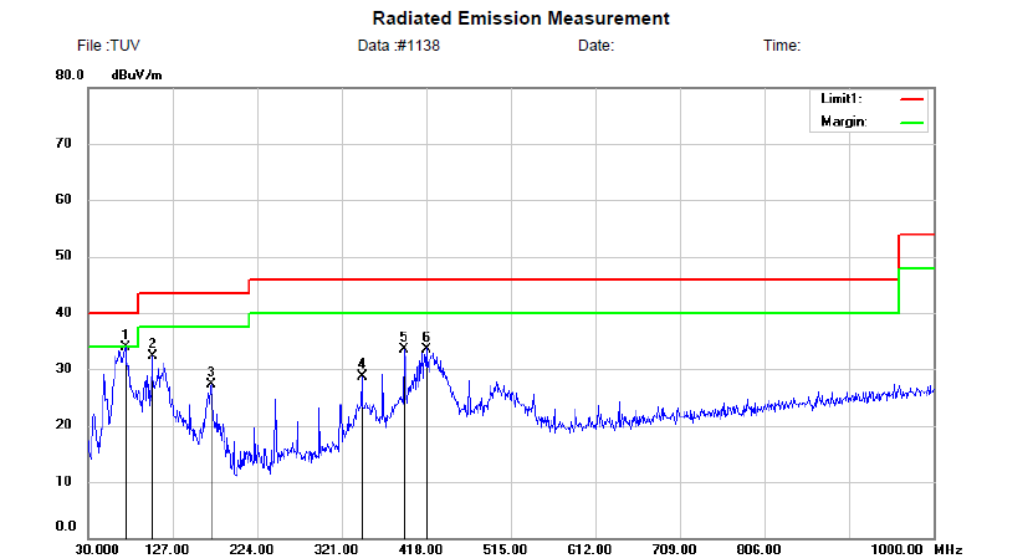
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	65.8900	40.47	-16.73	23.74	40.00	-16.26	QP		
2	97.9000	44.39	-15.65	28.74	43.50	-14.76	QP		
3	245.3400	41.39	-13.69	27.70	46.00	-18.30	QP		
4	294.8100	40.25	-11.82	28.43	46.00	-17.57	QP		
5	320.0300	40.92	-11.34	29.58	46.00	-16.42	QP		
6 *	368.5300	43.69	-10.43	33.26	46.00	-12.74	QP		

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

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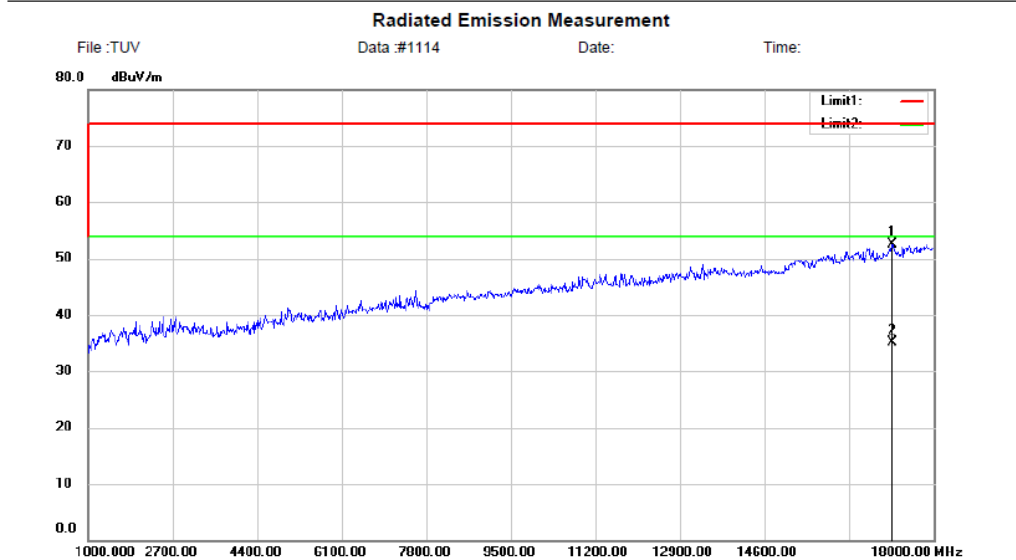


Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode: GFSK 2441
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1 *	72.6800	52.30	-18.44	33.86	40.00	-6.14	QP		
2	103.7200	47.70	-15.30	32.40	43.50	-11.10	QP		
3	171.6200	44.55	-17.21	27.34	43.50	-16.16	QP		
4	344.2800	39.16	-10.37	28.79	46.00	-17.21	QP		
5	392.7800	43.26	-9.68	33.58	46.00	-12.42	QP		
6	418.0000	42.98	-9.38	33.60	46.00	-12.40	QP		

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

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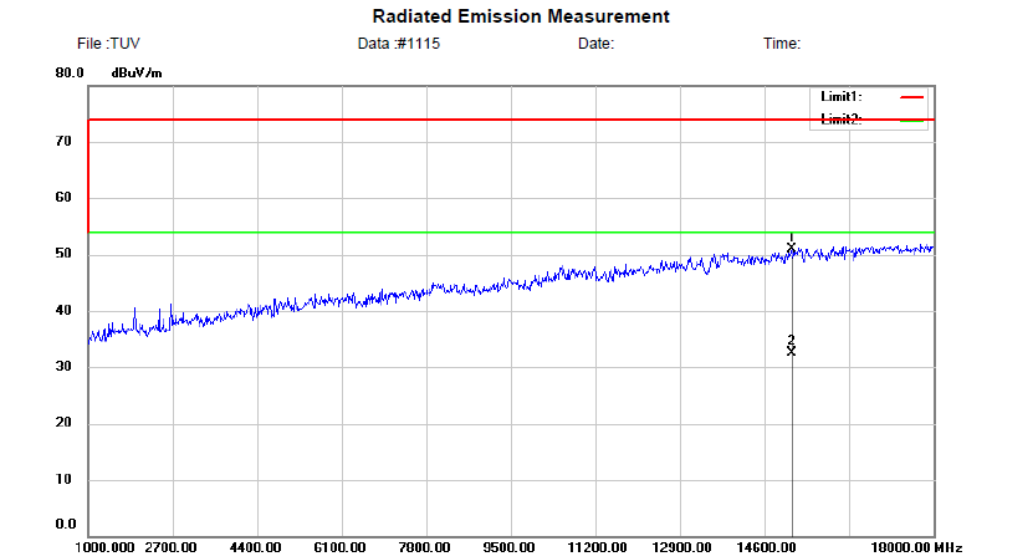


Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode: GFSK 2441
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		17167.00	46.05	6.43	52.48	74.00	-21.52	peak		
2	*	17167.00	28.77	6.43	35.20	54.00	-18.80	AVG		

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

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Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:GFSK 2441
 Note:

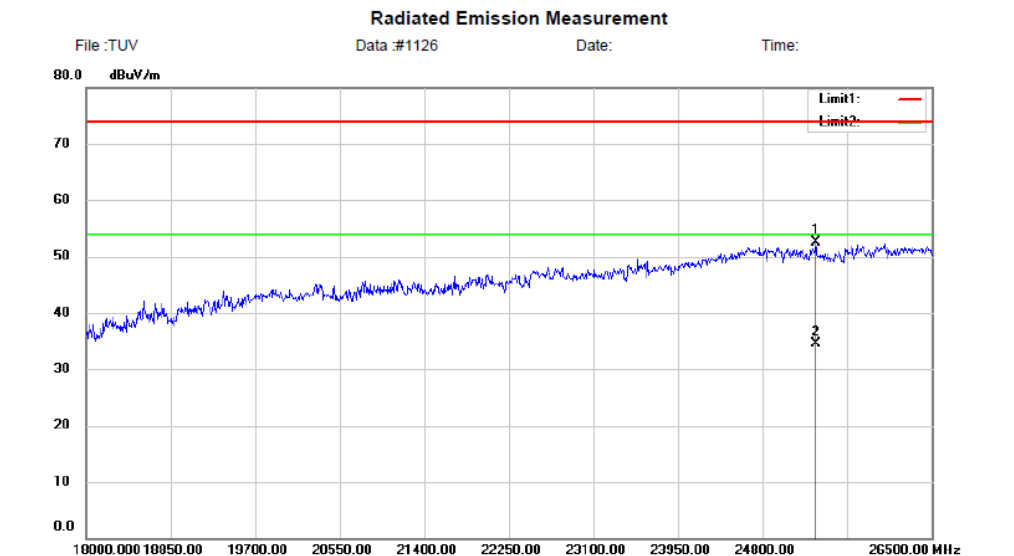
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	15144.00	47.61	3.25	50.86	74.00	-23.14	peak		
2 *	15144.00	29.35	3.25	32.60	54.00	-21.40	AVG		

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

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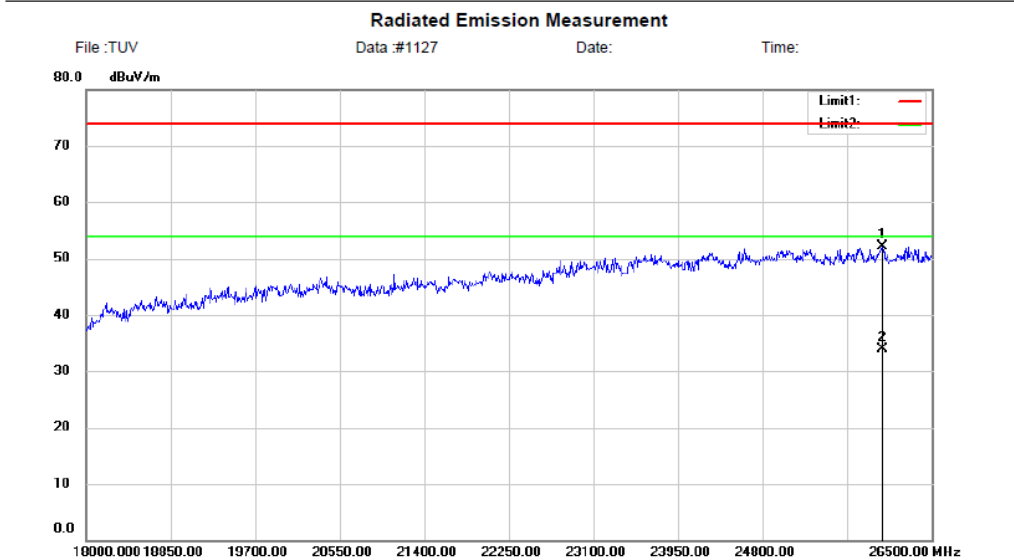


Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode:GFSK 2441
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	25335.50	89.20	-36.60	52.60	74.00	-21.40	peak		
2 *	25335.50	71.20	-36.60	34.60	54.00	-19.40	AVG		

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

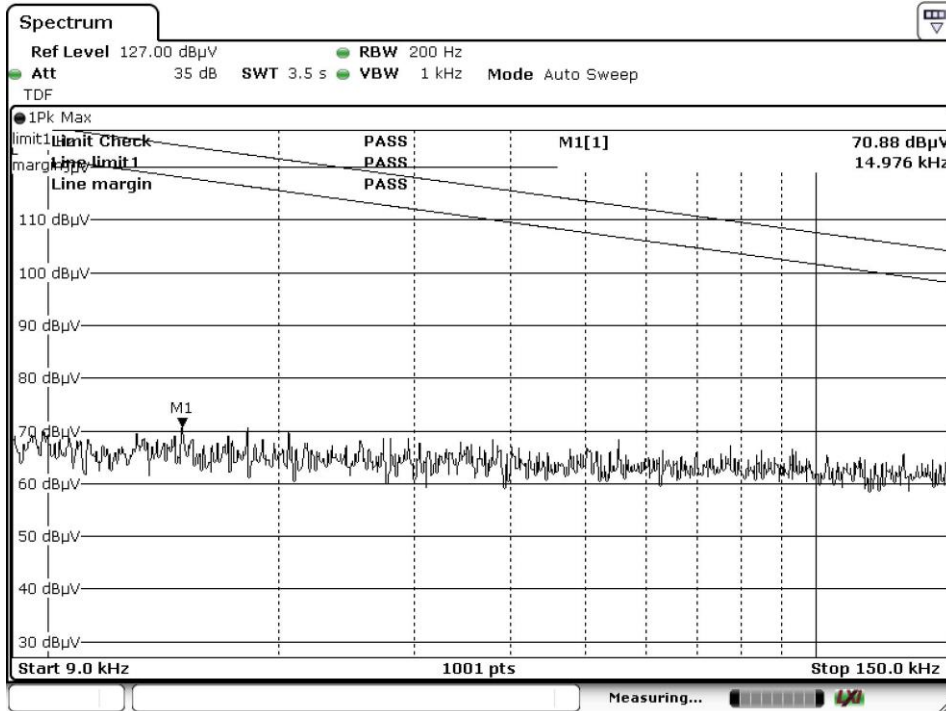
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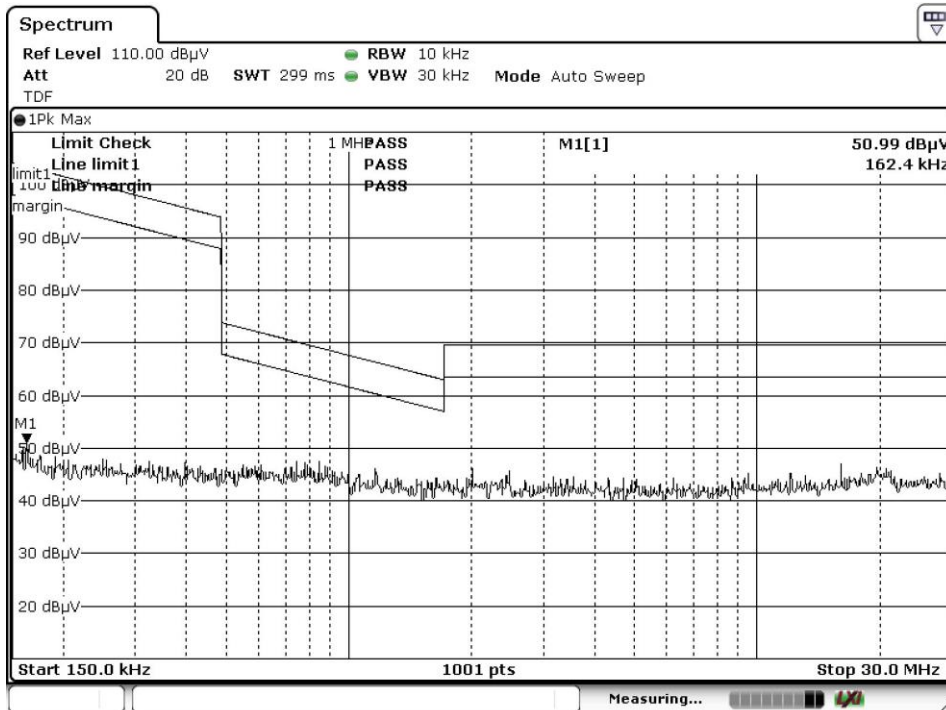
Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode: GFSK 2441
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		26007.00	87.93	-35.78	52.15	74.00	-21.85	peak		
2	*	26007.00	69.68	-35.78	33.90	54.00	-20.10	AVG		

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

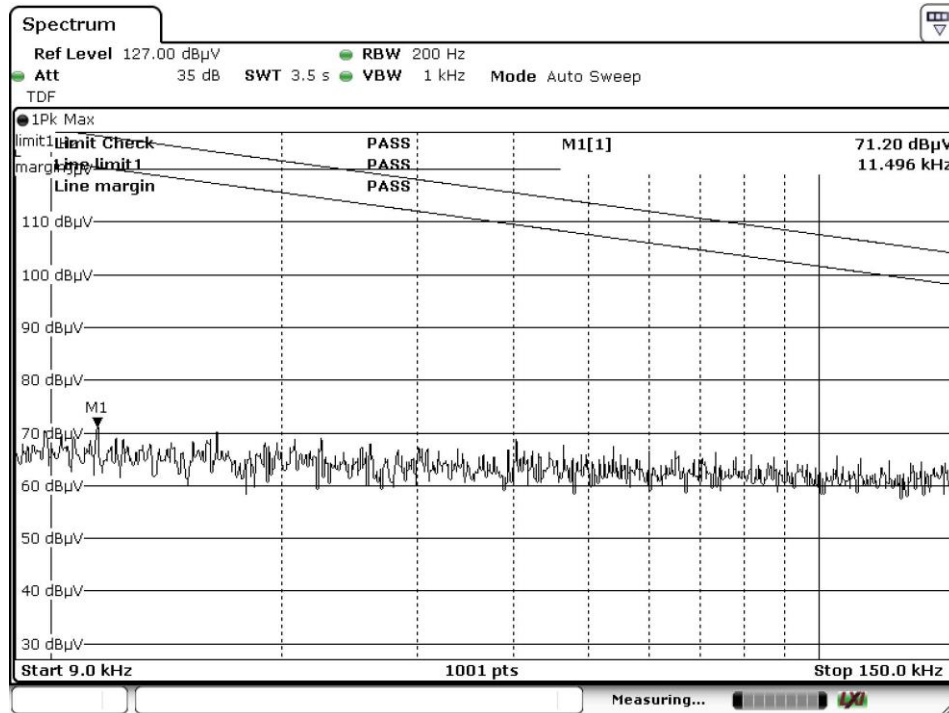


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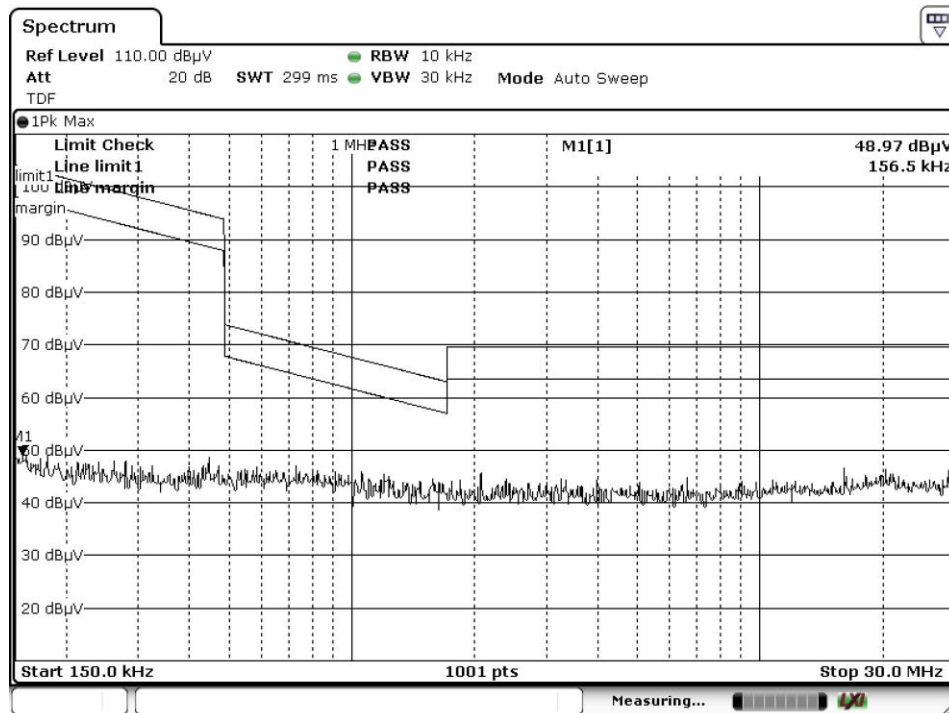


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Figure 18: Test figure of spurious emissions, mode A.3, Vertical polarity (9kHz – 30MHz)




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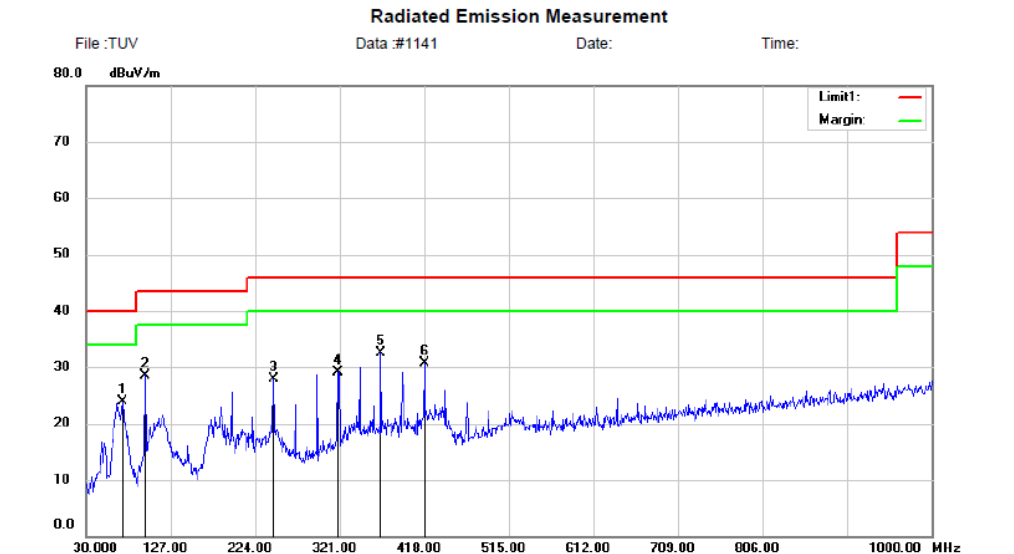
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Figure 19: Test figure of spurious emissions, mode A.3, Horizontal polarity (30MHz – 1GHz)

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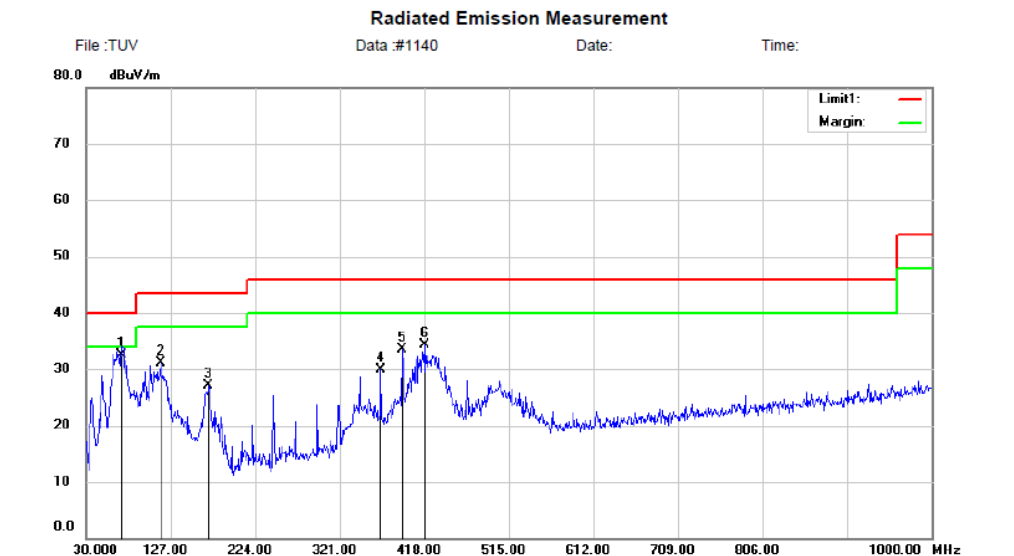
Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode:GFSK 2480
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	71.7100	42.14	-18.25	23.89	40.00	-16.11	QP		
2	97.9000	44.25	-15.65	28.60	43.50	-14.90	QP		
3	245.3400	41.62	-13.69	27.93	46.00	-18.07	QP		
4	319.0600	40.45	-11.35	29.10	46.00	-16.90	QP		
5 *	368.5300	43.03	-10.43	32.60	46.00	-13.40	QP		
6	418.0000	40.06	-9.38	30.68	46.00	-15.32	QP		

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

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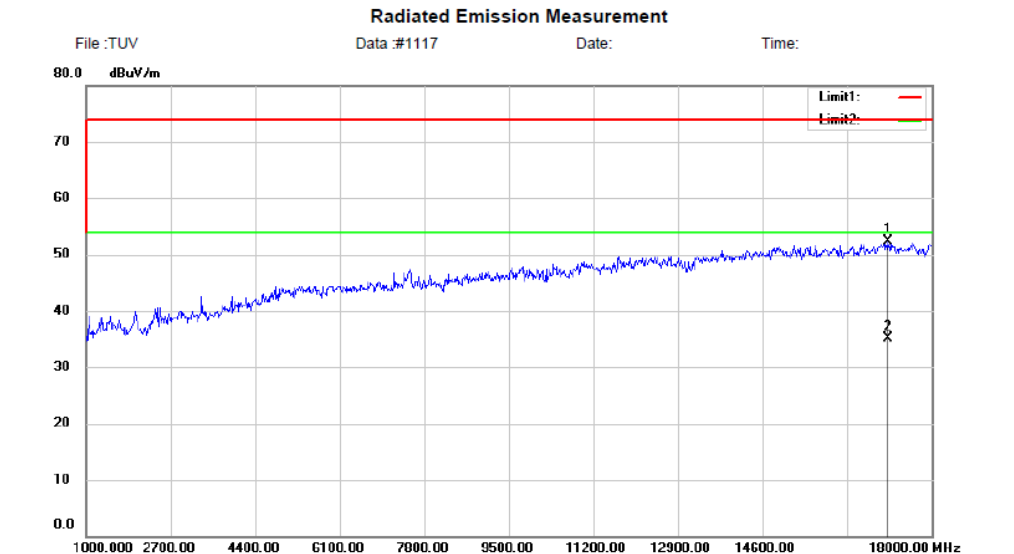
Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:GFSK 2480
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1 *	70.7400	50.66	-18.06	32.60	40.00	-7.40	QP		
2	115.3600	47.37	-16.26	31.11	43.50	-12.39	QP		
3	170.6500	44.29	-17.22	27.07	43.50	-16.43	QP		
4	368.5300	40.34	-10.43	29.91	46.00	-16.09	QP		
5	392.7800	43.14	-9.68	33.46	46.00	-12.54	QP		
6	418.0000	43.71	-9.38	34.33	46.00	-11.67	QP		

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

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Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:GFSK 2480
 Note:

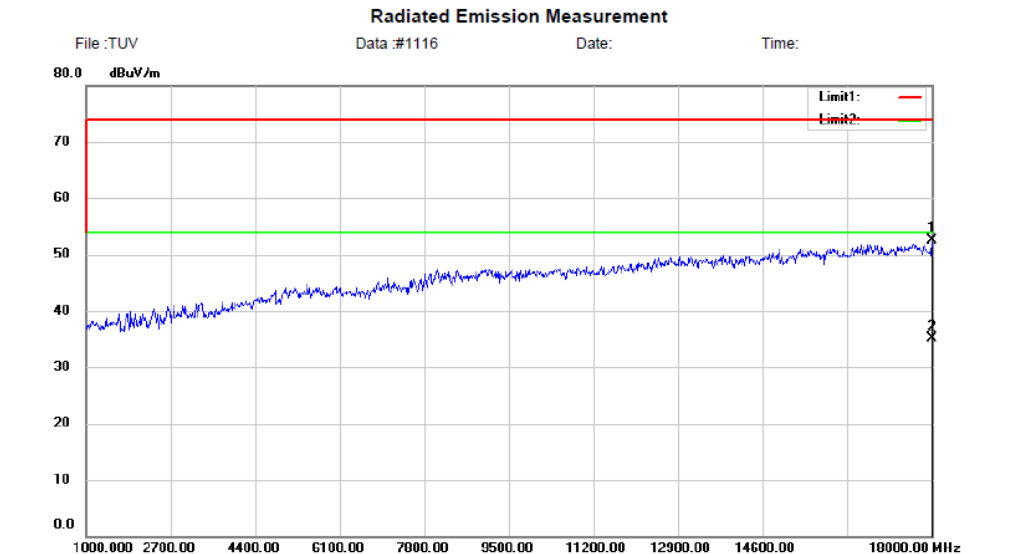
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	17116.00	48.00	4.27	52.27	74.00	-21.73	peak		
2 *	17116.00	30.93	4.27	35.20	54.00	-18.80	AVG		

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

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Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:GFSK 2480
 Note:

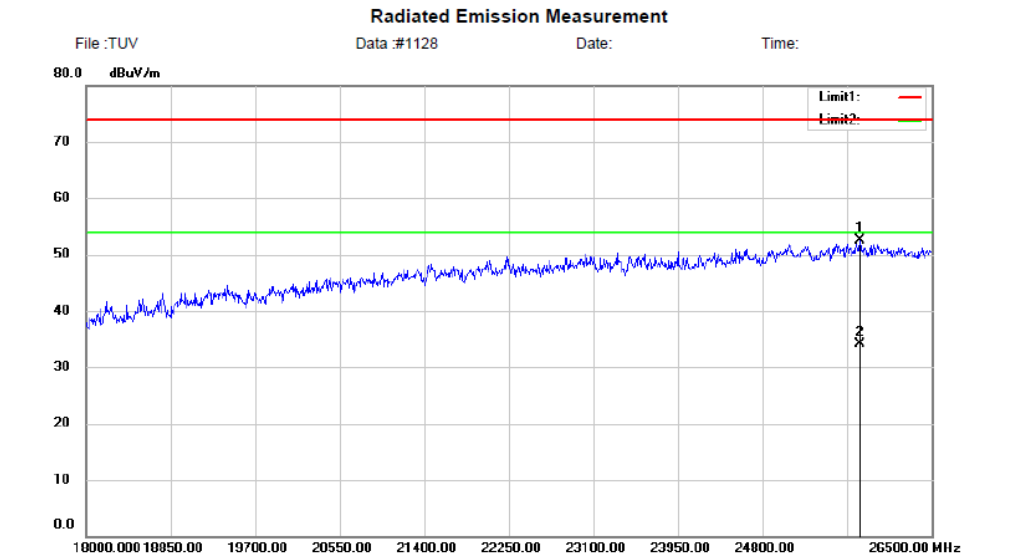
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	18000.00	37.33	15.12	52.45	74.00	-21.55	peak		
2 *	18000.00	20.08	15.12	35.20	54.00	-18.80	AVG		

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

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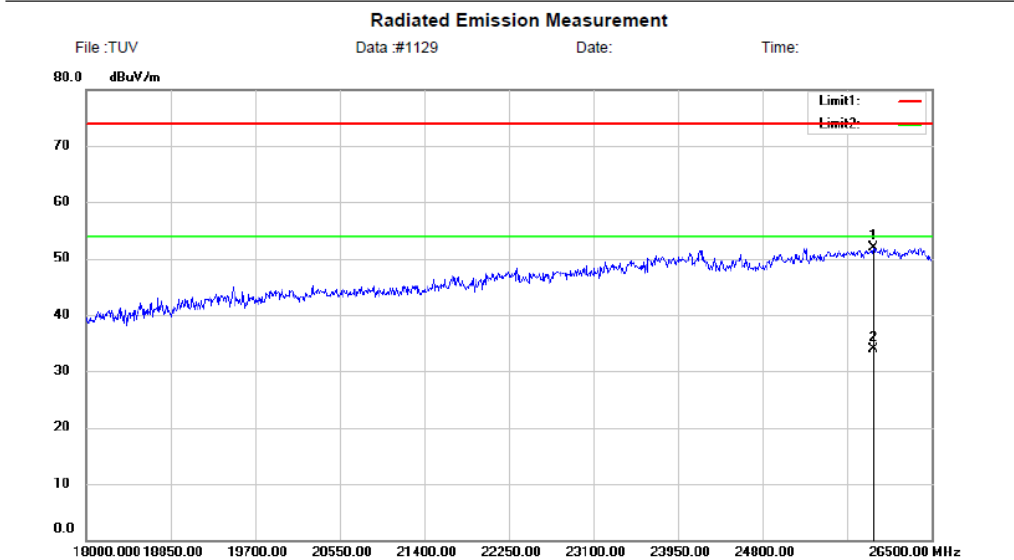


Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
EUT: BT Speaker
M/N: NS-HBTSS116
Mode: GFSK 2480
Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure-ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	25777.50	88.47	-36.06	52.41	74.00	-21.59	peak		
2 *	25777.50	70.16	-36.06	34.10	54.00	-19.90	AVG		

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

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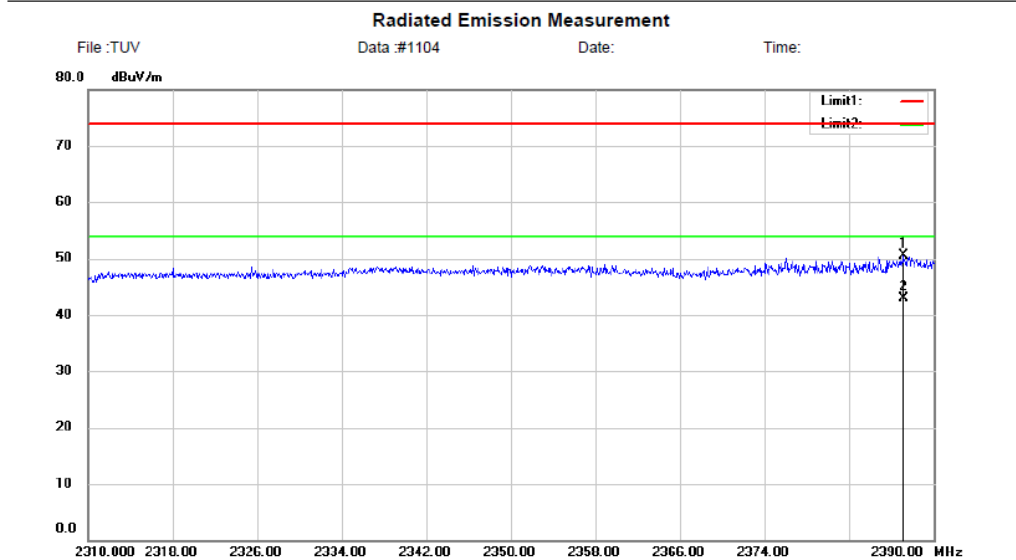


Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode: GFSK 2480
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		25913.50	87.79	-35.90	51.89	74.00	-22.11	peak		
2	*	25913.50	69.90	-35.90	34.00	54.00	-20.00	AVG		

Figure 25: Test figure of Radiated emissions in restricted bands, Mode A.1, Horizontal

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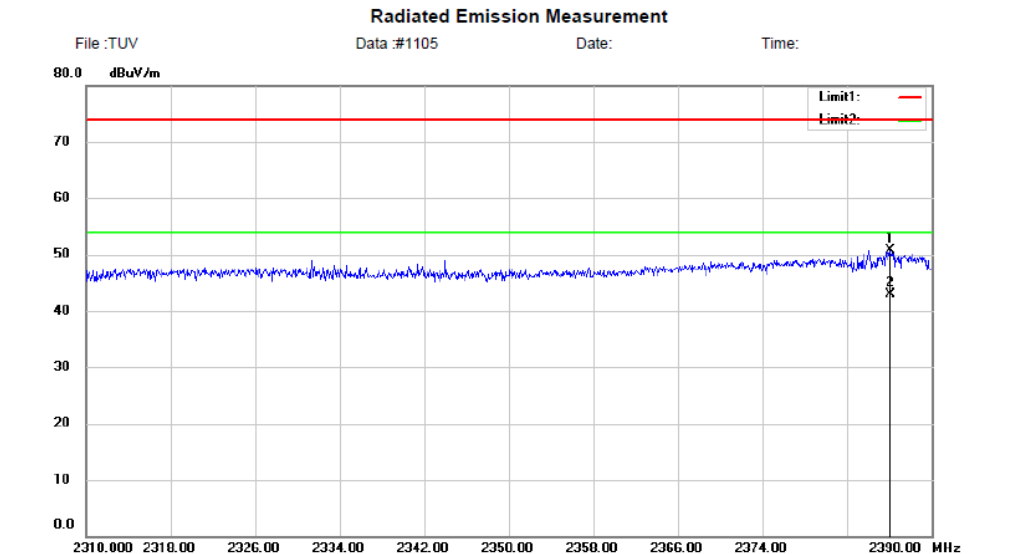
Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:8DPSK 2402
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		2387.120	35.44	15.01	50.45	74.00	-23.55	peak		
2	*	2387.120	27.89	15.01	42.90	54.00	-11.10	AVG		

Figure 26: Test figure of Radiated emissions in restricted bands, Mode A.1, Vertical

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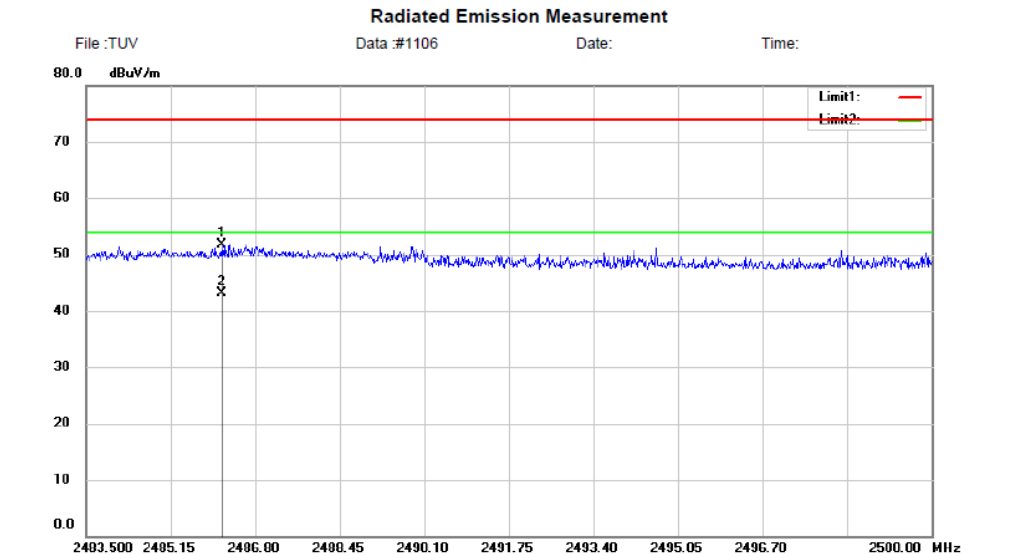
Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:8DPSK 2402
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1	2386.080	35.78	15.00	50.78	74.00	-23.22			peak	
2 *	2386.080	27.90	15.00	42.90	54.00	-11.10			AVG	

Figure 27: Test figure of Radiated emissions in restricted bands, Mode A.3, Horizontal

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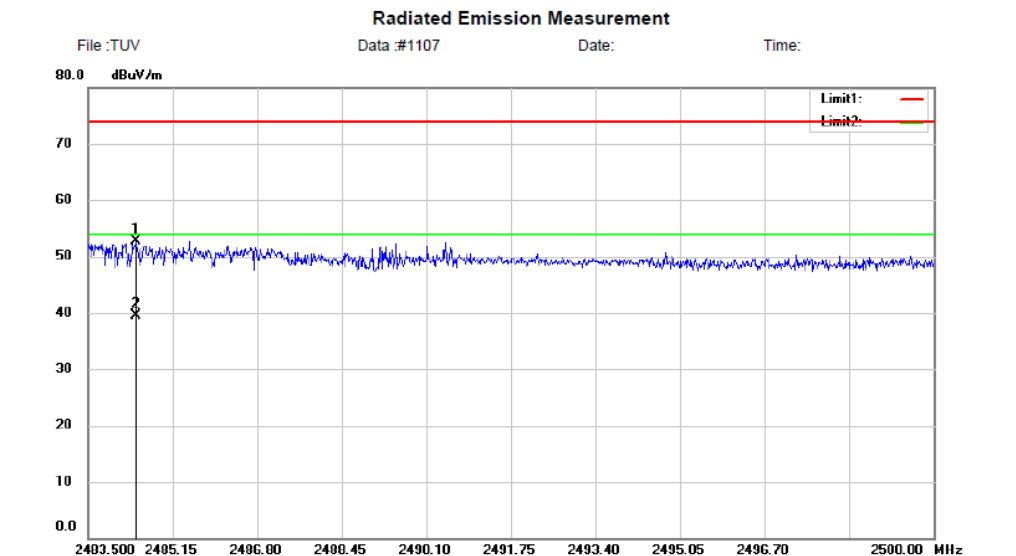
Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:8DPSK 2480
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure-ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1	2486.157	35.83	15.82	51.65	74.00	-22.35			peak	
2 *	2486.157	27.38	15.82	43.20	54.00	-10.80			AVG	

Figure 28: Test figure of Radiated emissions in restricted bands, Mode A.3, Vertical

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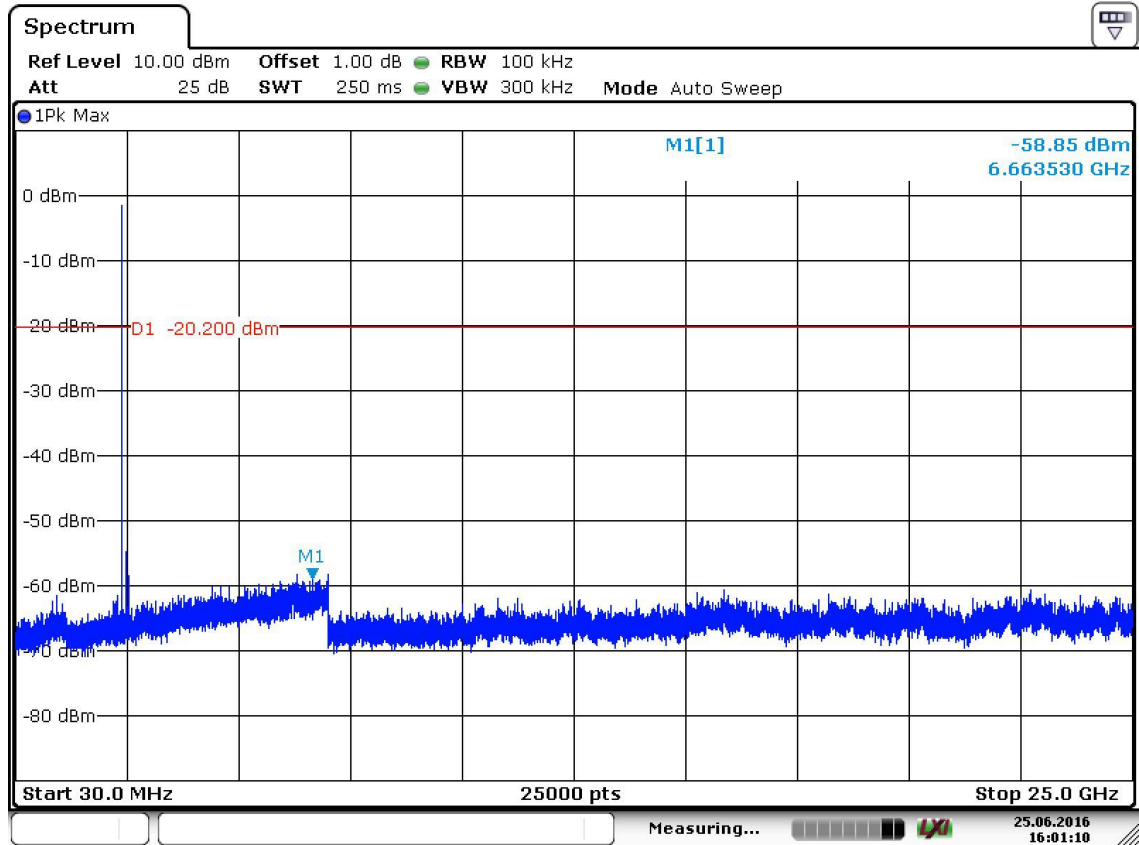

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Site 3m Chamber #3 Polarization: **Vertical** Temperature: 24 C
 Limit: (RE)FCC PART 15 C Power: AC 120V/60Hz Humidity: 53 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:8DPSK 2480
 Note:

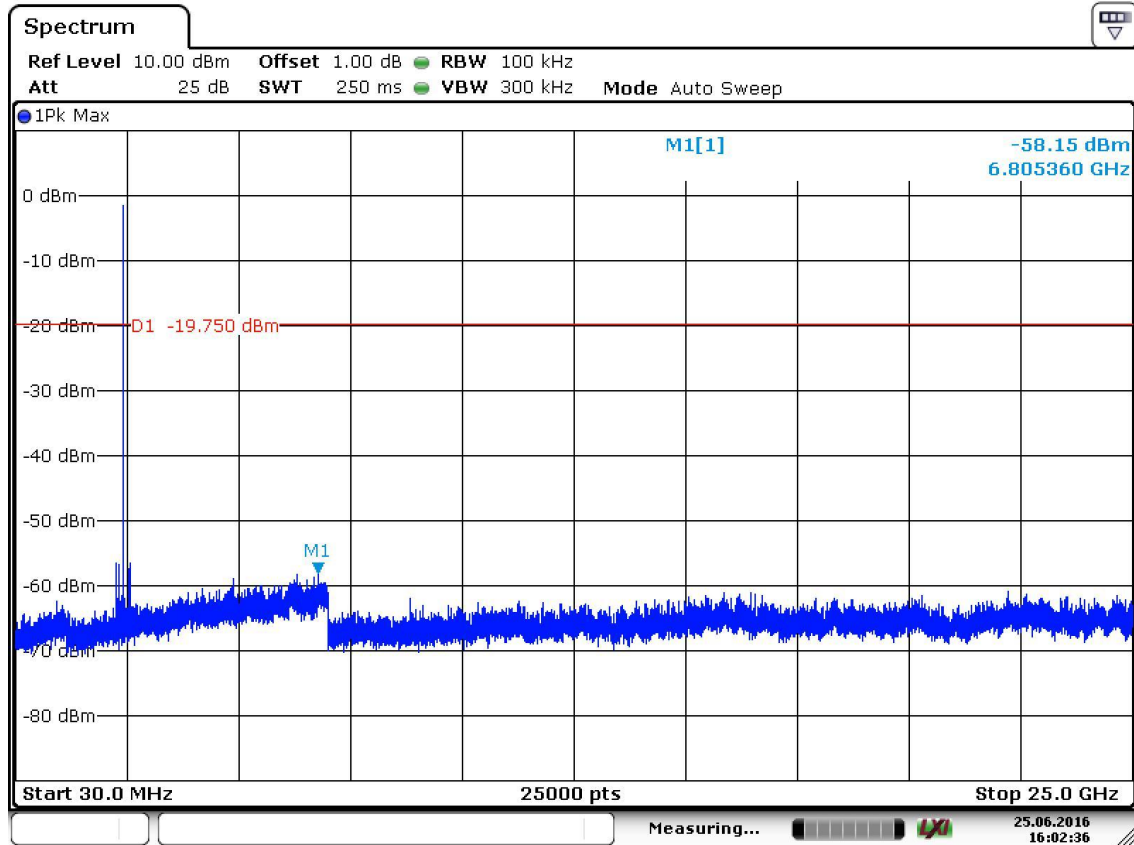
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1	2484.424	36.99	15.81	52.80	74.00	-21.20			peak	
2 *	2484.424	23.79	15.81	39.60	54.00	-14.40			AVG	

Figure 29: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.1



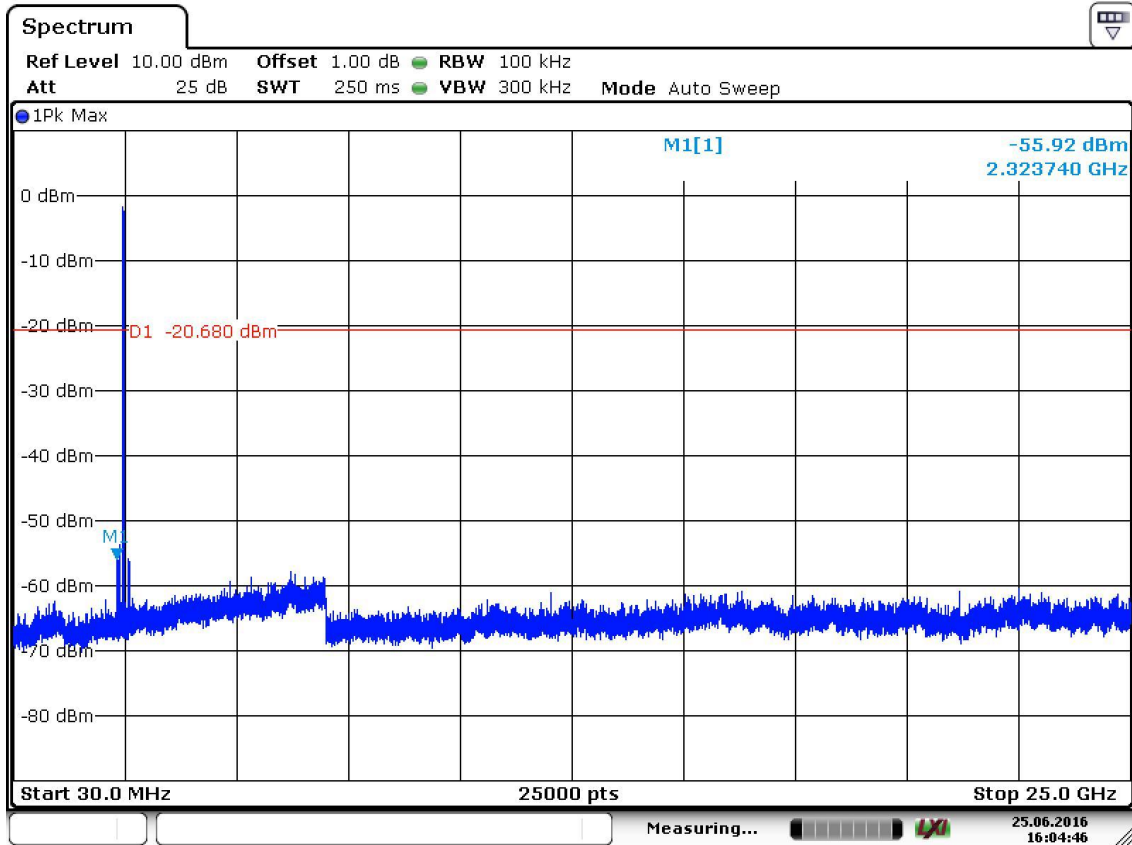
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Figure 30: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.2



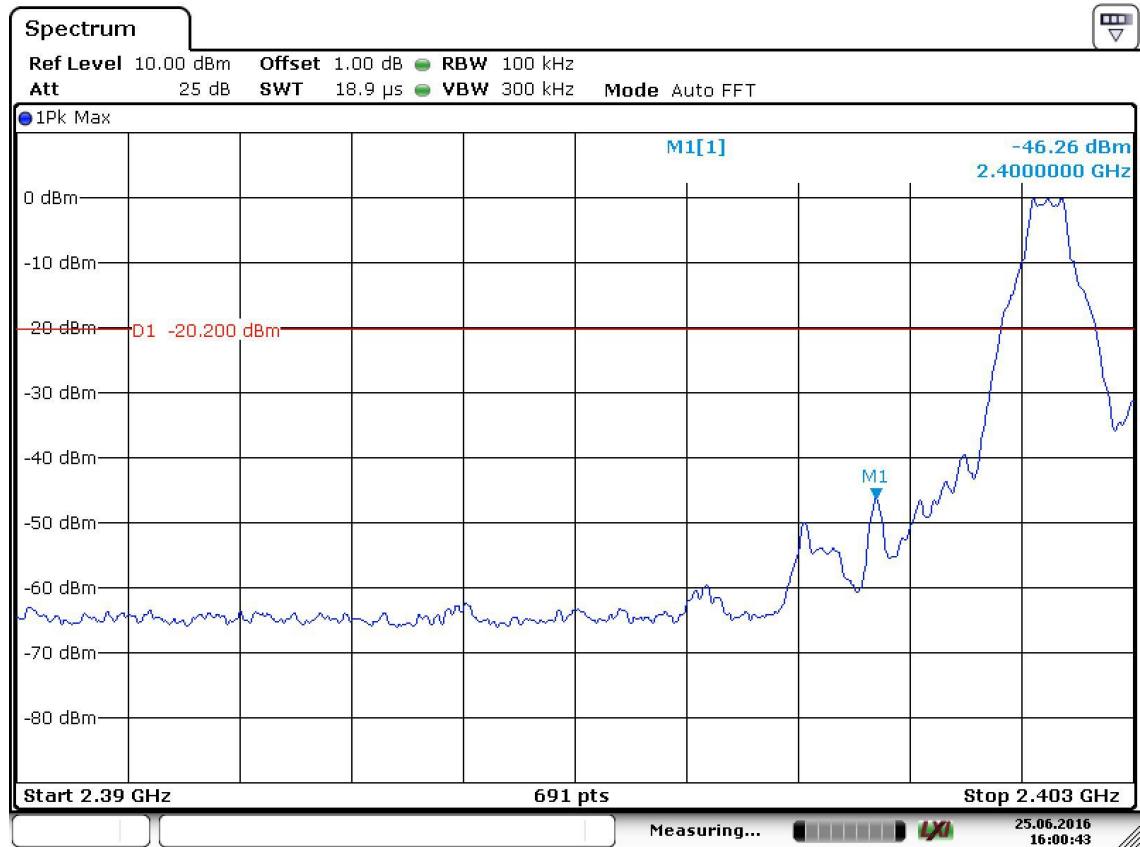
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Figure 31: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.3



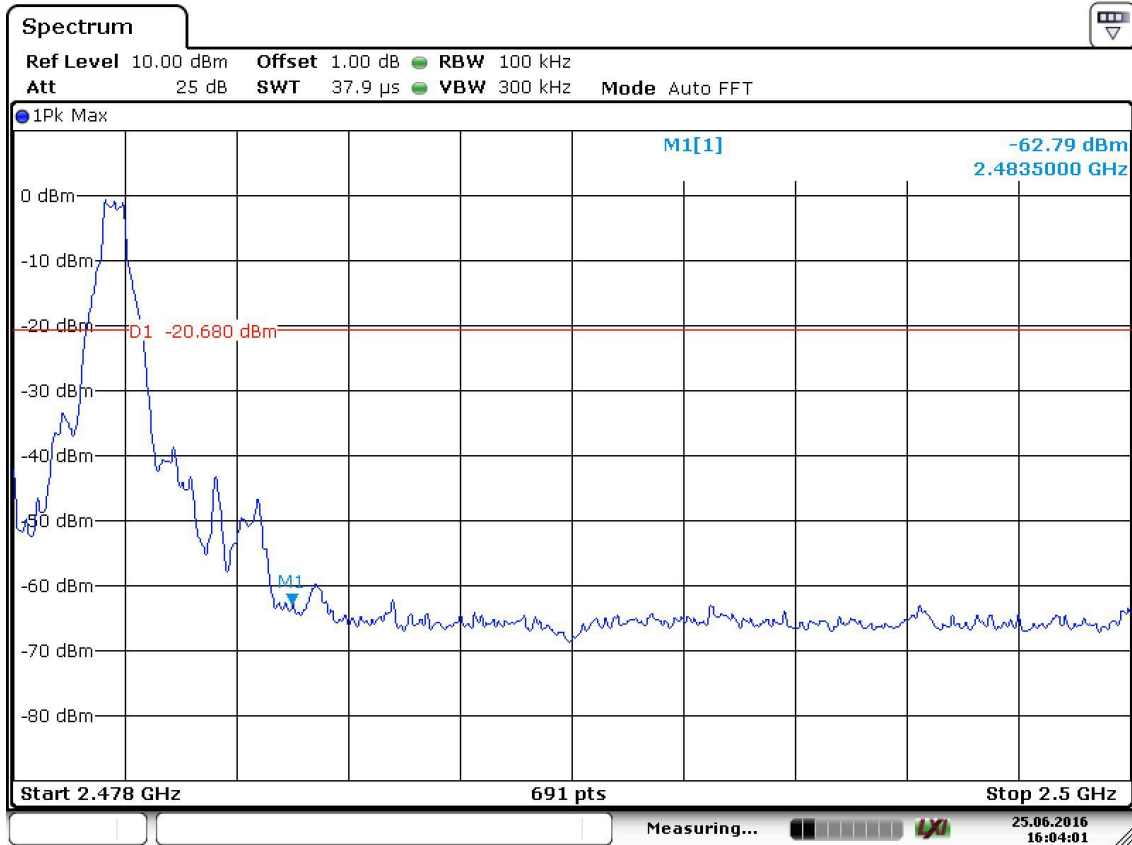
Date: 25.JUN.2016 16:04:46

Figure 32: Test figure of Frequency Band Edge in 100kHz Bandwidth, Mode A.1



Date: 25.JUN.2016 16:00:44

Figure 33: Test figure of Frequency Band Edge in 100kHz Bandwidth, Mode A.3



Date: 25.JUN.2016 16:04:02

Figure 34: Test figure of Conducted emissions, Mode C, line live

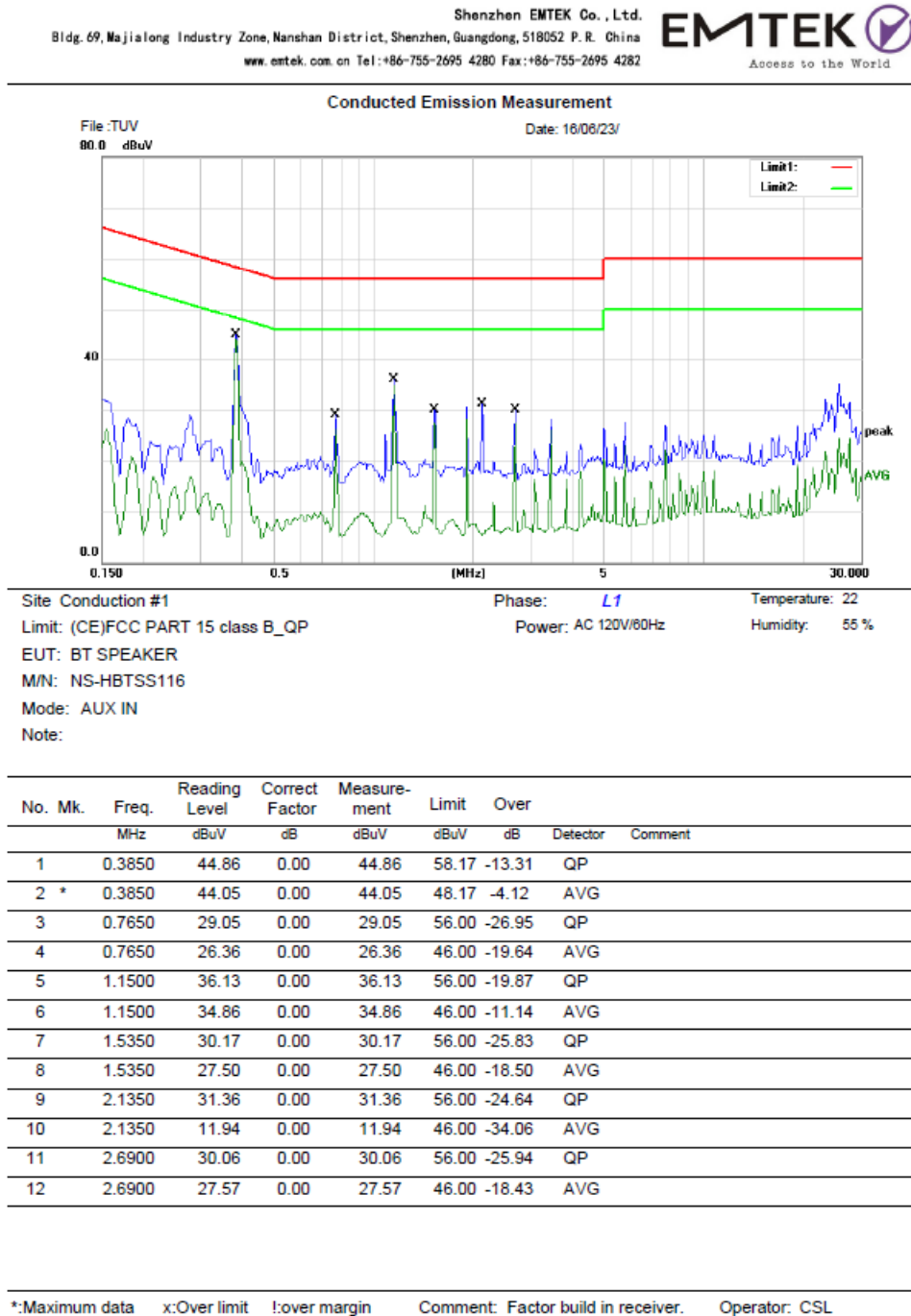

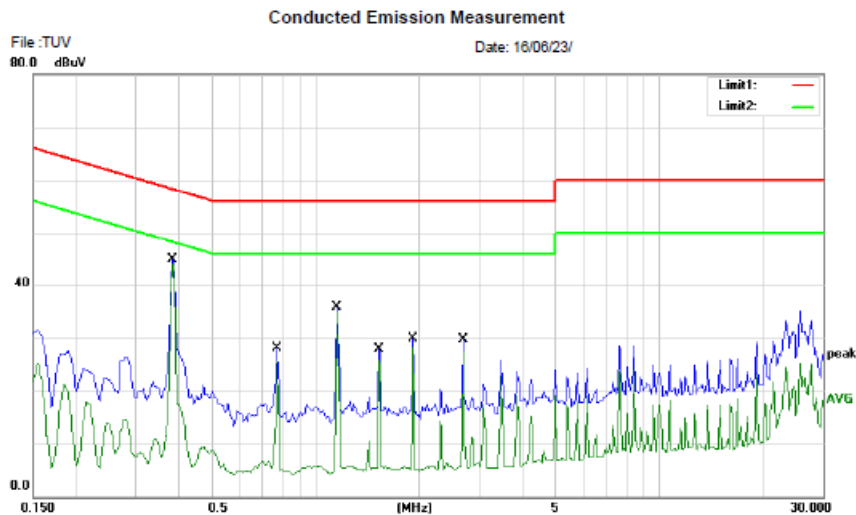


Figure 35: Test figure of Conducted emissions, Mode C, line neutral

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Site Conduction #1 Phase: **N** Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %
EUT: BT SPEAKER
M/N: NS-HBTSS116
Mode: AUX IN
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.3850	45.00	0.00	45.00	58.17	-13.17	QP	
2	*	0.3850	44.05	0.00	44.05	48.17	-4.12	AVG	
3		0.7700	28.20	0.00	28.20	56.00	-27.80	QP	
4		0.7700	25.60	0.00	25.60	46.00	-20.40	AVG	
5		1.1500	35.93	0.00	35.93	56.00	-20.07	QP	
6		1.1500	35.00	0.00	35.00	46.00	-11.00	AVG	
7		1.5350	27.93	0.00	27.93	56.00	-28.07	QP	
8		1.5350	25.80	0.00	25.80	46.00	-20.20	AVG	
9		1.9200	29.95	0.00	29.95	56.00	-26.05	QP	
10		1.9200	28.34	0.00	28.34	46.00	-17.66	AVG	
11		2.6900	29.72	0.00	29.72	56.00	-26.28	QP	
12		2.6900	27.57	0.00	27.57	46.00	-18.43	AVG	

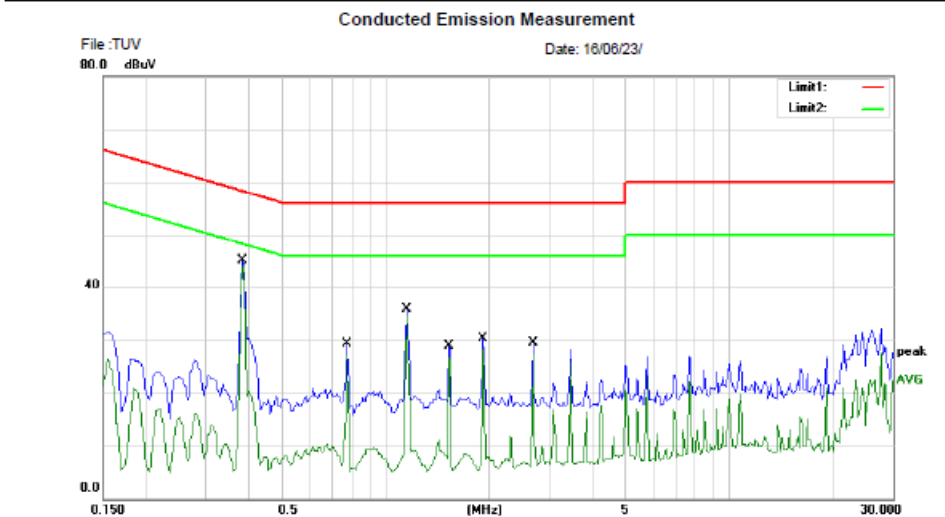
*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: CSL

Figure 36: Test figure of Conducted emissions, Mode D, line live

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Site: Conduction #1 Phase: L1 Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %
EUT: BT SPEAKER
M/N: NS-HBTSS116
Mode: RCA
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.3850	45.10	0.00	45.10	58.17	-13.07	QP	
2	*	0.3850	44.10	0.00	44.10	48.17	-4.07	AVG	
3		0.7700	29.27	0.00	29.27	56.00	-26.73	QP	
4		0.7700	27.01	0.00	27.01	46.00	-18.99	AVG	
5		1.1500	35.95	0.00	35.95	56.00	-20.05	QP	
6		1.1500	34.71	0.00	34.71	46.00	-11.29	AVG	
7		1.5350	28.92	0.00	28.92	56.00	-27.08	QP	
8		1.5350	26.79	0.00	26.79	46.00	-19.21	AVG	
9		1.9200	30.31	0.00	30.31	56.00	-25.69	QP	
10		1.9200	28.26	0.00	28.26	46.00	-17.74	AVG	
11		2.6900	29.58	0.00	29.58	56.00	-26.42	QP	
12		2.6900	27.22	0.00	27.22	46.00	-18.78	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: CSL

Figure 37: Test figure of Conducted emissions, Mode D, line neutral

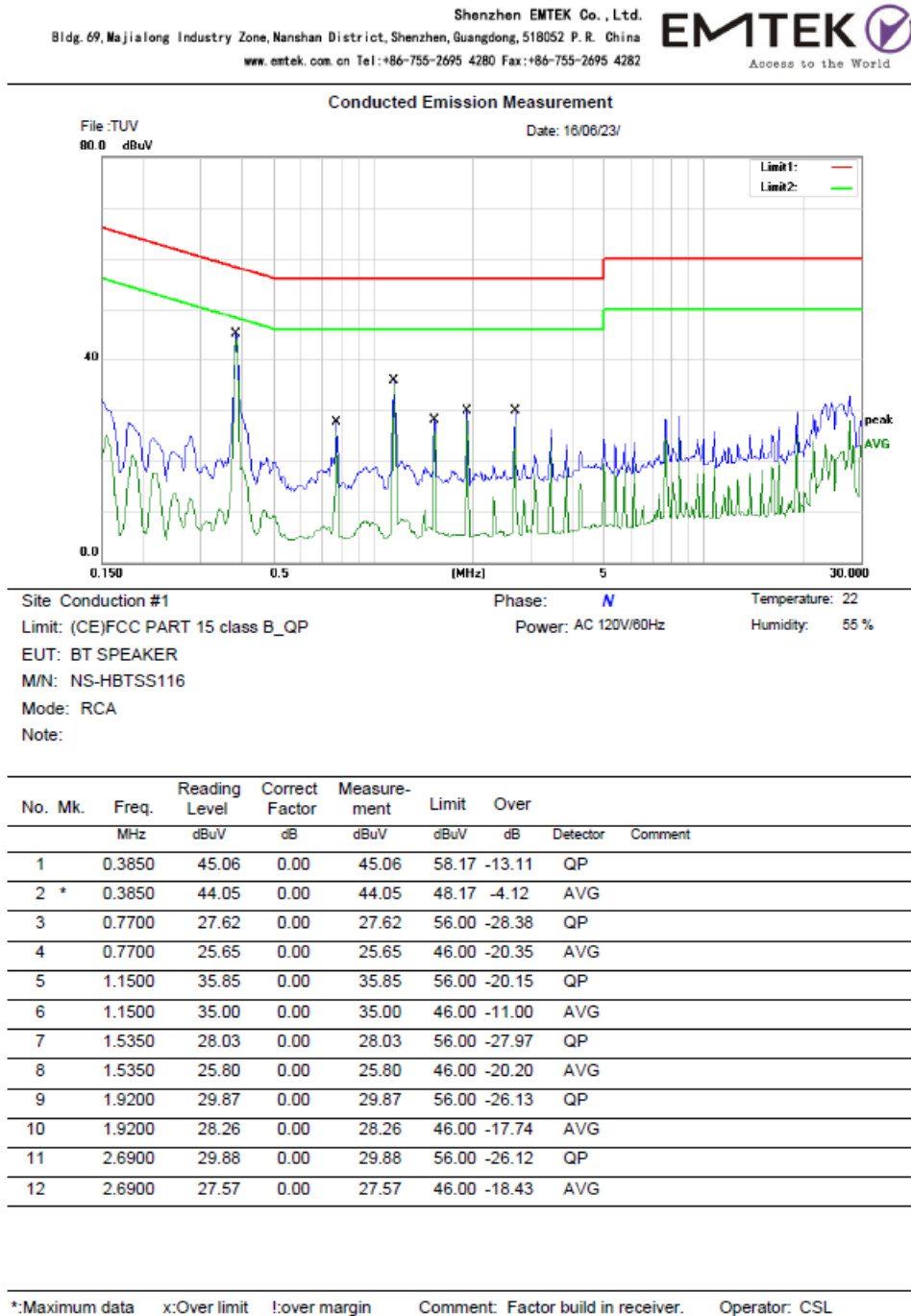

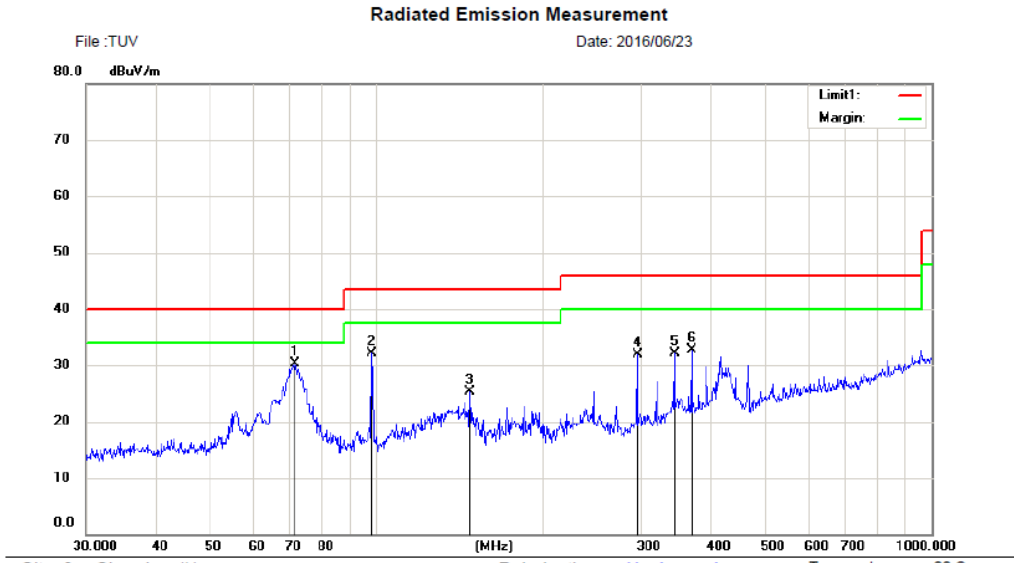


Figure 38: Test figure of Radiated emissions, Mode C, Below 1GHz, Horizontal

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Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 22 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 50 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode: AUX IN
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1 *	71.3300	47.55	-17.21	30.34	40.00	-9.66	QP			
2	98.1420	44.35	-12.33	32.02	43.50	-11.48	QP			
3	147.4036	41.60	-16.34	25.26	43.50	-18.24	QP			
4	295.1468	41.10	-9.15	31.95	46.00	-14.05	QP			
5	344.3855	39.98	-7.90	32.08	46.00	-13.92	QP			
6	369.4047	40.22	-7.46	32.76	46.00	-13.24	QP			

Figure 39: Test figure of Radiated emissions, Mode C, Below 1GHz, Vertical

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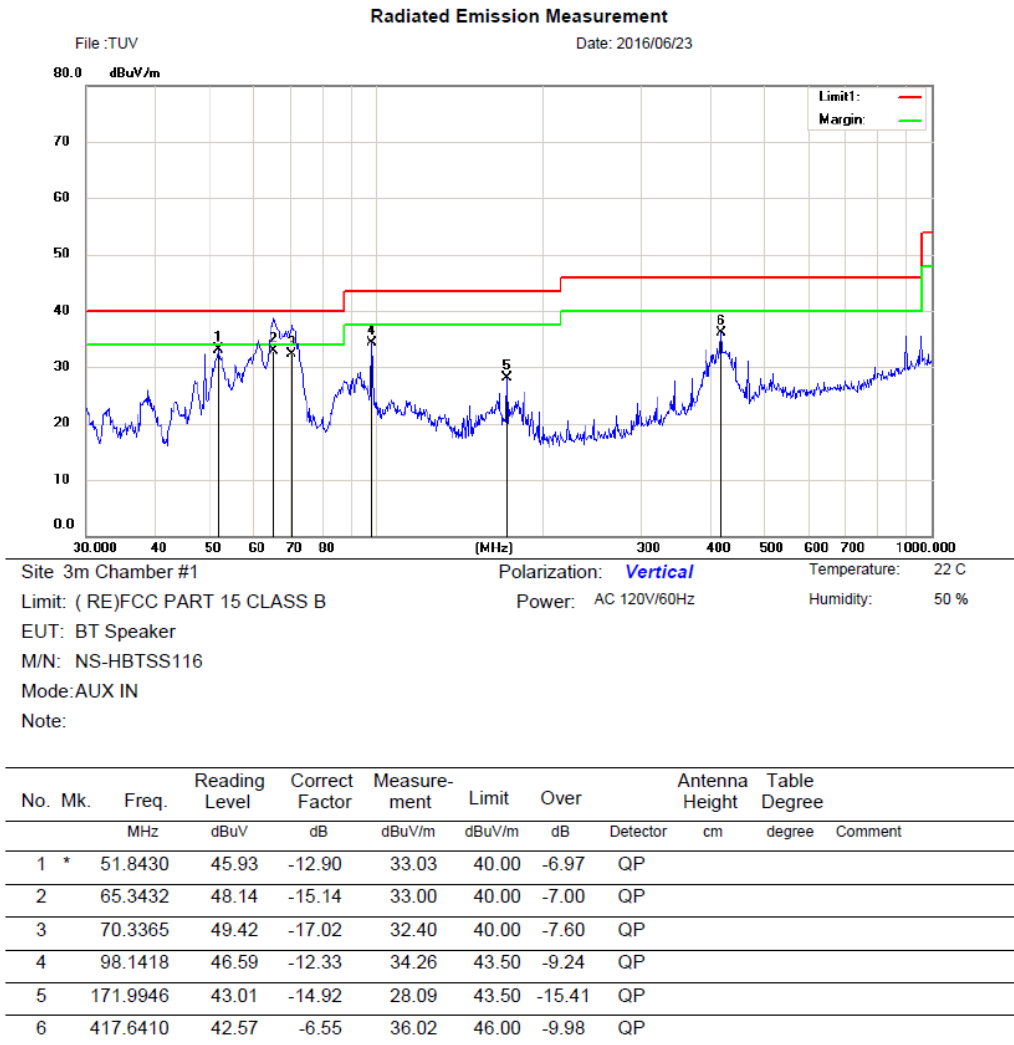


Figure 40: Test figure of Radiated emissions, Mode C, Above 1GHz, Horizontal

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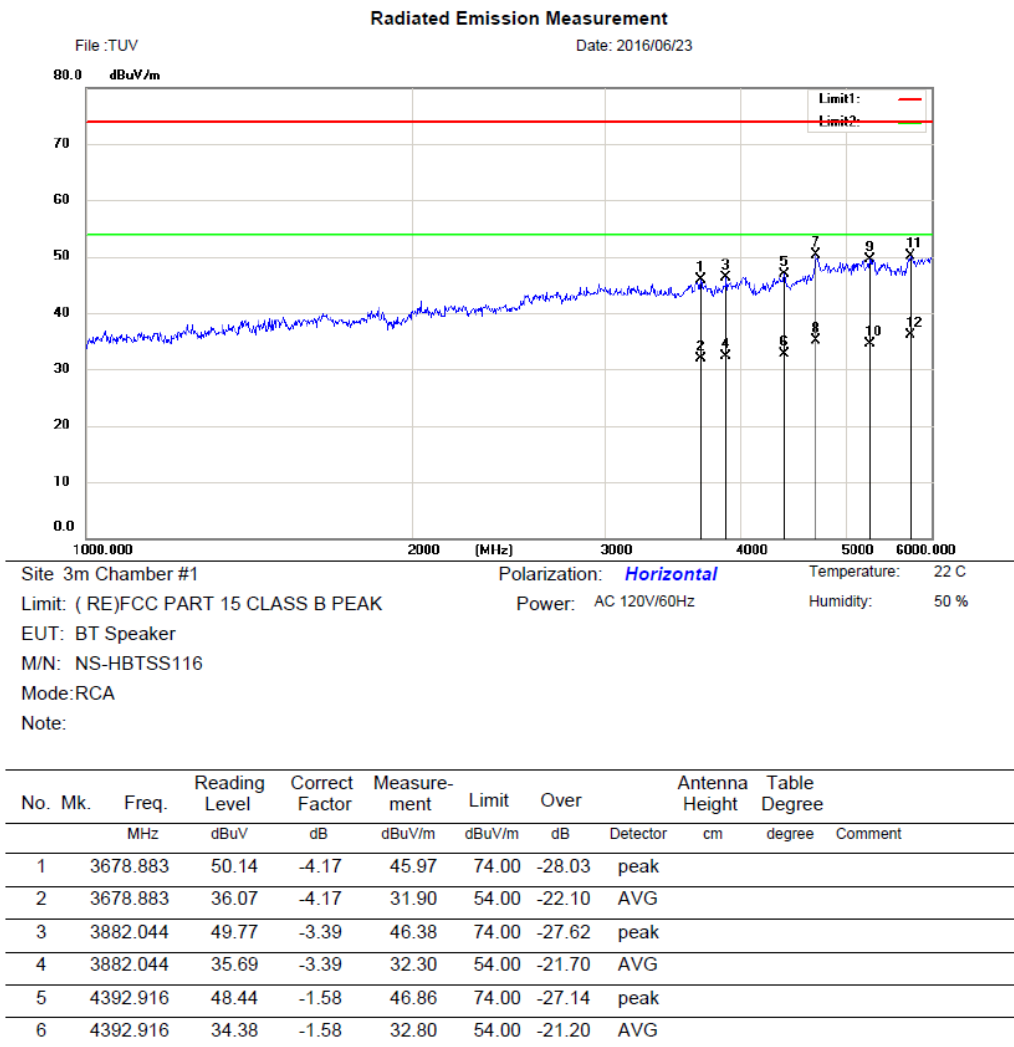

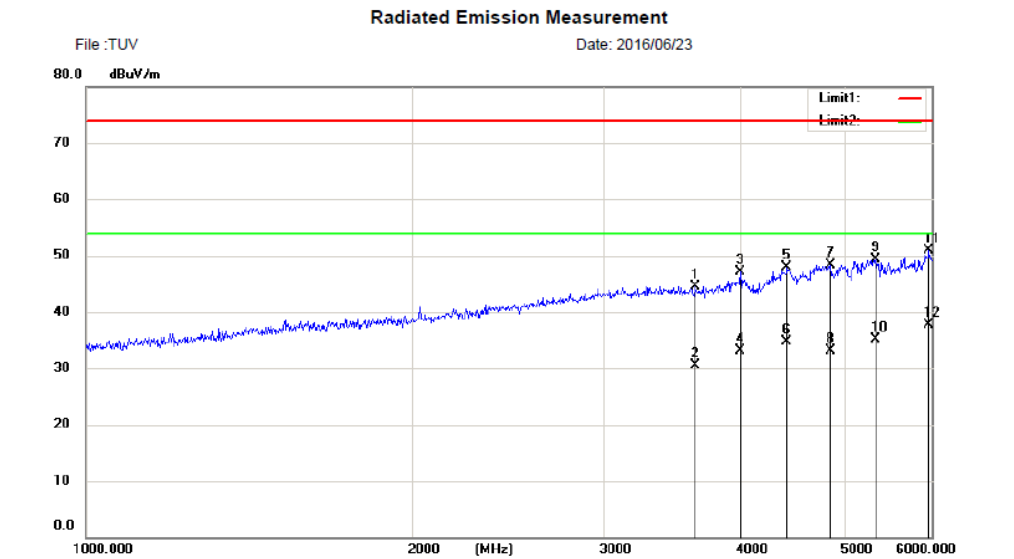


Figure 41: Test figure of Radiated emissions, Mode C, Above 1GHz, Vertical

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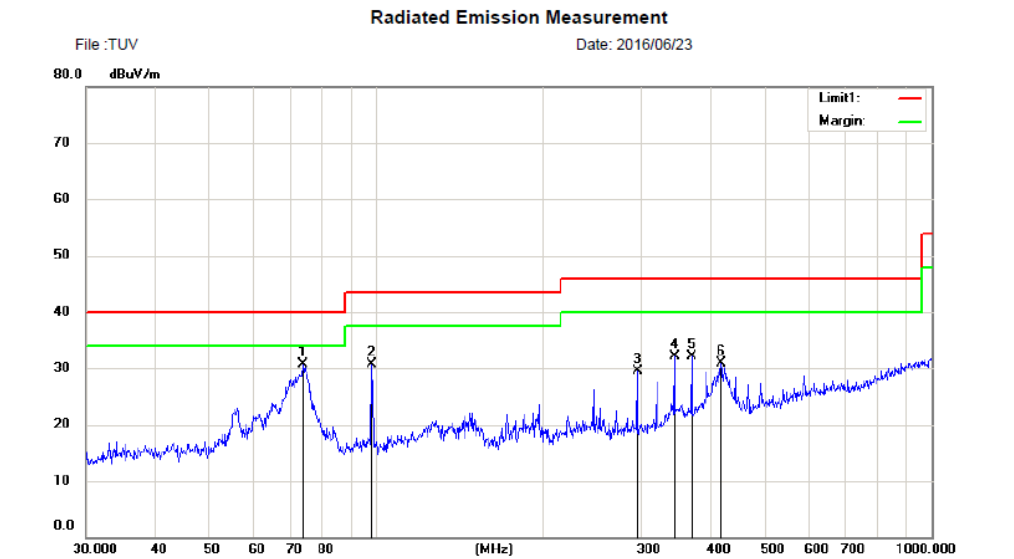


Site 3m Chamber #1 Polarization: **Vertical** Temperature: 22 C
 Limit: (RE)FCC PART 15 CLASS B PEAK Power: AC 120V/60Hz Humidity: 50 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:AUX IN
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	3633.029	48.90	-4.35	44.55	74.00	-29.45	peak		
2	3633.029	34.85	-4.35	30.50	54.00	-23.50	AVG		
3	4002.110	50.09	-2.93	47.16	74.00	-26.84	peak		
4	4002.110	36.03	-2.93	33.10	54.00	-20.90	AVG		
5	4416.593	49.34	-1.50	47.84	74.00	-26.16	peak		
6	4416.593	36.30	-1.50	34.80	54.00	-19.20	AVG		

Figure 42: Test figure of Radiated emissions, Mode D, Below 1GHz, Horizontal

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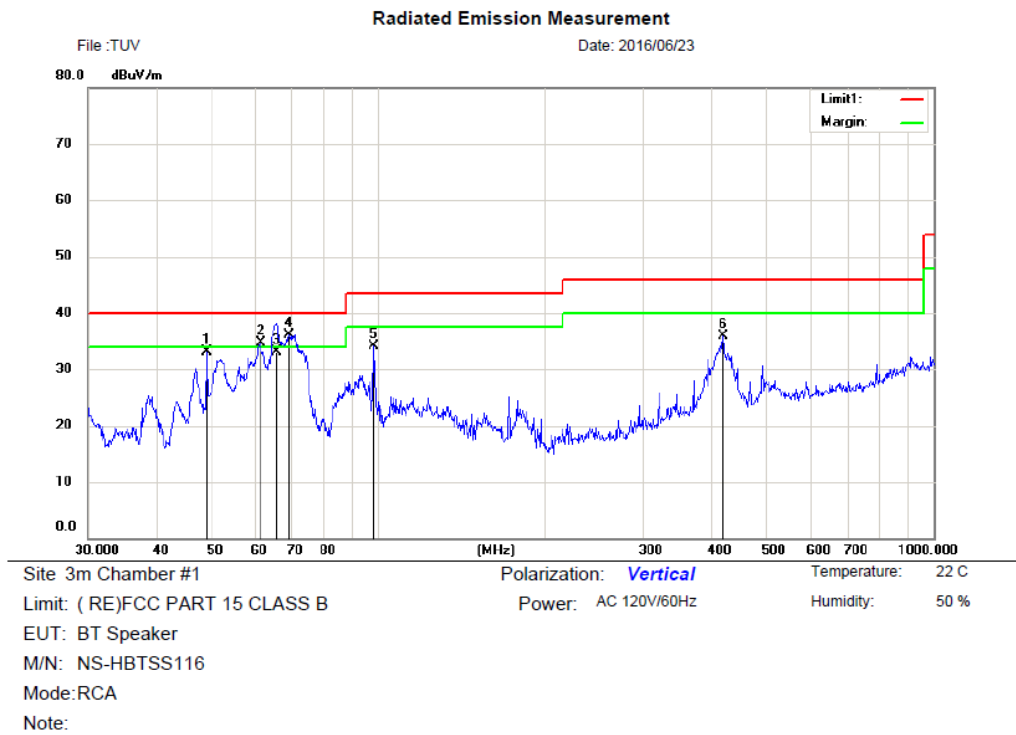



Site 3m Chamber #1 Polarization: **Horizontal** Temperature: 22 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 50 %
 EUT: BT Speaker
 M/N: NS-HBTSS116
 Mode:RCA
 Note:

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure-ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1 *	73.8756	48.31	-17.69	30.62	40.00	-9.38			QP	
2	98.1420	42.94	-12.33	30.61	43.50	-12.89			QP	
3	295.1470	38.65	-9.15	29.50	46.00	-16.50			QP	
4	344.3855	39.93	-7.90	32.03	46.00	-13.97			QP	
5	369.4047	39.53	-7.46	32.07	46.00	-13.93			QP	
6	417.6411	37.41	-6.55	30.86	46.00	-15.14			QP	

Figure 43: Test figure of Radiated emissions, Mode D, Below 1GHz, Vertical

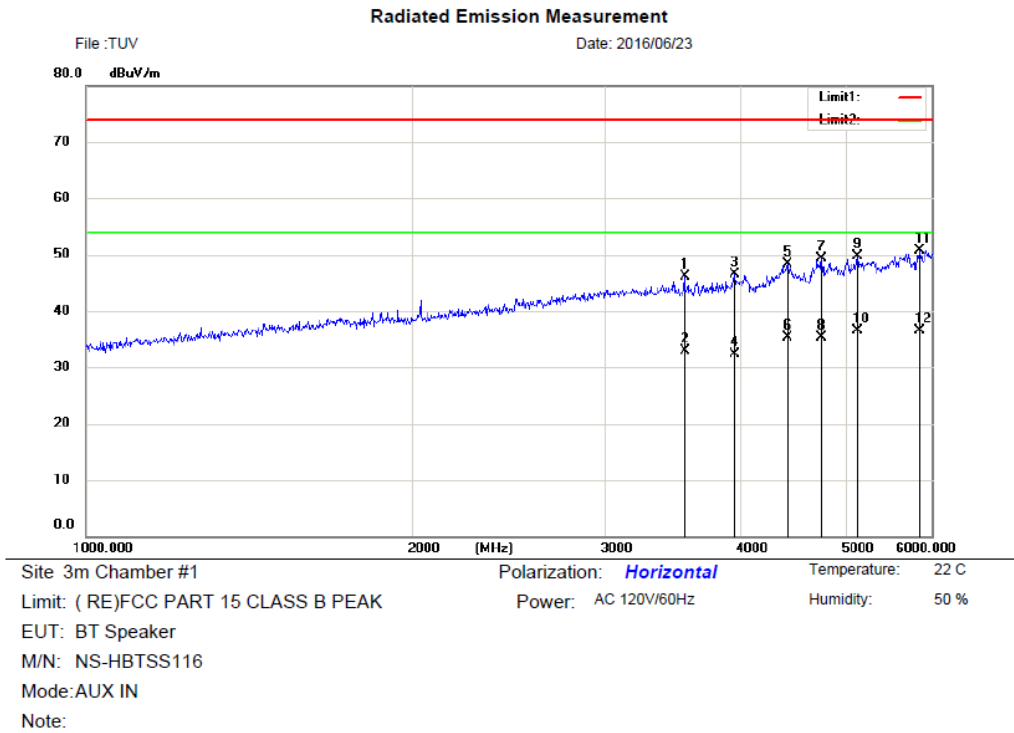
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		49.0144	45.55	-12.51	33.04	40.00	-6.96	QP		
2	I	61.3463	48.03	-13.42	34.61	40.00	-5.39	QP		
3		65.5727	48.33	-15.23	33.10	40.00	-6.90	QP		
4	*	69.1140	52.77	-16.61	36.16	40.00	-3.84	QP		
5		98.1418	46.45	-12.33	34.12	43.50	-9.38	QP		
6		417.6410	42.41	-6.55	35.86	46.00	-10.14	QP		

Figure 44: Test figure of Radiated emissions, Mode D, Above 1GHz, Horizontal

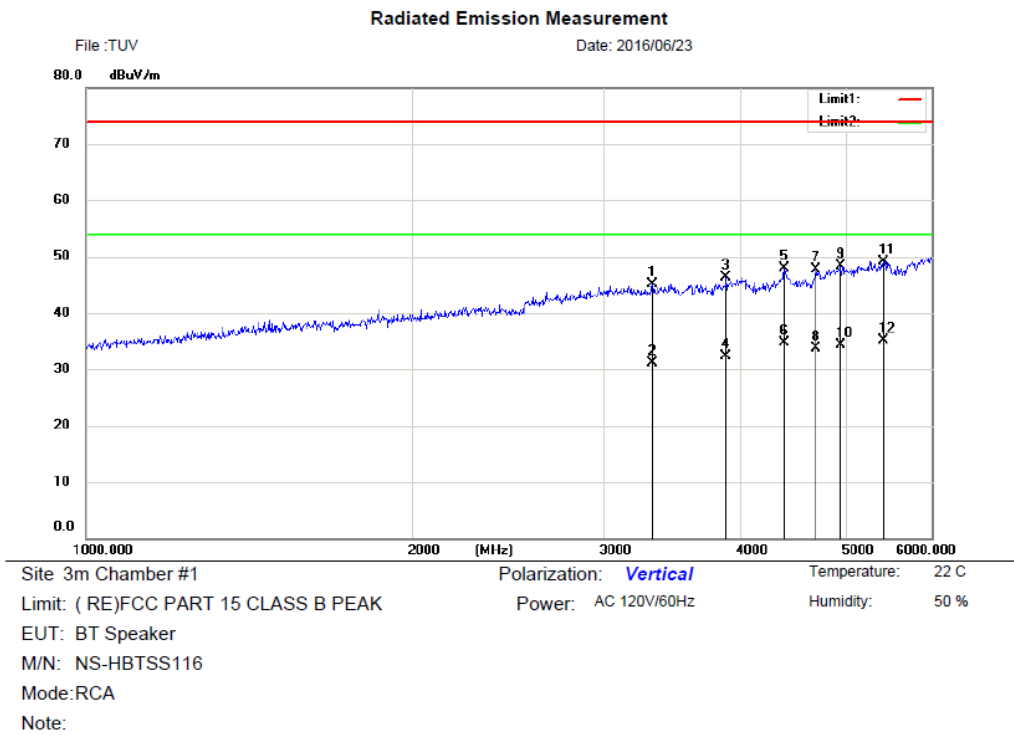
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		3555.749	50.70	-4.65	46.05	74.00	-27.95	peak		
2		3555.749	37.65	-4.65	33.00	54.00	-21.00	AVG		
3		3952.228	49.55	-3.12	46.43	74.00	-27.57	peak		
4		3952.228	35.52	-3.12	32.40	54.00	-21.60	AVG		
5		4424.514	49.79	-1.47	48.32	74.00	-25.68	peak		
6		4424.514	36.77	-1.47	35.30	54.00	-18.70	AVG		

Figure 45: Test figure of Radiated emissions, Mode D, Above 1GHz, Vertical

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No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1	3321.707	50.19	-5.01	45.18	74.00	-28.82	peak			
2	3321.707	36.11	-5.01	31.10	54.00	-22.90	AVG			
3	3882.044	49.77	-3.39	46.38	74.00	-27.62	peak			
4	3882.044	35.69	-3.39	32.30	54.00	-21.70	AVG			
5	4392.916	49.44	-1.58	47.86	74.00	-26.14	peak			
6	4392.916	36.38	-1.58	34.80	54.00	-19.20	AVG			