

FCC Test Report

Report No.: AGC15661230401FE02

FCC ID	:	2AZHPW0890
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Neurosens IMU sensor
BRAND NAME	:	Neurosoft
MODEL NAME	:	Neurosens IMU sensor
APPLICANT	:	Neurosoft Ltd
DATE OF ISSUE	:	Apr. 27, 2023
STANDARD(S)	:	FCC Part 15.247
REPORT VERSION	:	V1.0
<u>Attestation of (</u>	<u>710</u>	obal Compliance (Shenzhen) Co., Ltd





REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 27, 2023	Valid	Initial Release



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Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



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1. VERIFICATION OF COMPLIANCE

Applicant	Neurosoft Ltd
Address	Voronin str.5, Ivanovo, 153032, Russia Federation
Manufacturer	Neurosoft Ltd
Address	Voronin str.5, Ivanovo, 153032, Russia Federation
Factory	Neurosoft Ltd
Address	Voronin str.5, Ivanovo, 153032, Russia Federation
Product Designation	Neurosens IMU sensor
Brand Name	Neurosoft
Test Model	Neurosens IMU sensor
Date of receipt of test item	Apr. 19, 2023
Date of test	Apr. 19, 2023 to Apr. 27, 2023
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BLE/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.

Thea Huang Prepared By Thea Huang Apr. 27, 2023 (Project Engineer) **Reviewed By** Calvin Liu Apr. 27, 2023 (Reviewer) Approved By Max Zhang Apr. 27, 2023 (Authorized Officer)



2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as a "Neurosens IMU sensor". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz	
RF Output Power	GFSK 1Mbps: 7.679dBm (Max) GFSK 2Mbps: 7.828dBm (Max)	
Bluetooth Version	V5.0	
Modulation	BR □GFSK, EDR □π /4-DQPSK, □8DPSK BLE ⊠GFSK 1Mbps ⊠GFSK 2Mbps	
Number of channels	40 Channels	
Antenna Designation	PCB Antenna (Comply with requirements of the FCC part 15.203)	
Antenna Gain	-1.56dBi	
Hardware Version	V1.2	
Software Version	V4.1.3	
Power Supply	DC 3.7V by battery or DC 5V by PC	

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	
2400~2483.5MHz	0	2402 MHz	
	1	2404 MHz	
	:	:	
	38	2478 MHz	
	39	2480 MHz	



2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: 2AZHPW0890** filing to comply with the FCC Part 15.247 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y $\pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_{c} = \pm 2.7 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$



4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX for GFSK 1Mbps
2	Middle channel TX for GFSK 1Mbps
3	High channel TX for GFSK 1Mbps
4	Low channel TX for GFSK 2Mbps
5	Middle channel TX for GFSK 2Mbps
6	High channel TX for GFSK 2Mbps

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.

2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

v		
💹 Bluetooth RF Test Tool (RtlBluetoothMP.dll Version :5.3.1.4 RTLBTAPP Version :5.2.2.40)	_	\Box ×
Mode About		
COM UART Port Port Baudrate=115200 Open Ameba D Delay 3000ms Close	Hot Key	
Non Link Mode Hopping LE Test RW Tx Settings	HCI	Reset
LE PKT TX (for MP)	Read	Thermal
Channel 0 Data Len 0xff Payload Type Pseudo-Random bit sequence 9 PHY LE 1M PHY		ChipInfo TxPower
Modulation Index Istable modulation Start Stop	Power Tra C OFF © ON	acking Set Get
LE Rx Count 0	PHY_STAI	GE 👤
Message		
	Read BI	D Address
BLE Spec is BT5,0, Change GUI format is BT4.0 >>Open device successfully >>Get Crystal value = 0x0 >>XTAL Tracking function (No Support)!!	Load	d Script
>>LeTest_Start: PKT TX		

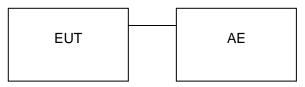
Software Setting



5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:

EUT	AE

5.2. EQUIPMENT USED IN TESTED SYSTEM

ltem	Equipment	Model No.	ID or Specification	Remark
1	Neurosens IMU sensor	Neurosens IMU	2AZHPW0890	EUT
2	Huawei Notebook PC	D15	DC 5V	AE
3	PC adapter	HW-200200CP1	DC 5V	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Compliant



6. TEST FACILITY

Test Site	Attestation of 0	Attestation of Global Compliance (Shenzhen) Co., Ltd				
Location		1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China				
Designation Number	CN1259	CN1259				
FCC Test Firm Registration Number	975832	975832				
A2LA Cert. No.	5054.02					
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA					
TEST EQUIPMENT OF	TEST EQUIPMENT OF CONDUCTED EMISSION TEST					
Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due	
TEST RECEIVER	R&S	ESPI	101206	Feb. 18, 2023	Feb. 17, 2024	
LISN	R&S	ESH2-Z5	100086	Aug. 04, 2022	Aug. 03, 2023	
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A	

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESCI	10096	Feb. 18, 2023	Feb. 17, 2024
EXA Signal Analyzer	Agilent	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
Signal Analyzer	Aglient	N9020A	MY52090123	Aug. 04, 2022	Aug. 03, 2023
2.4GHz Filter	EM Electronics	N/A	N/A	Mar. 18, 2022	Mar. 19, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 04, 2022	Aug. 03, 2024
Horn Antenna	SCHWARZBEC	BBHA9170	768	Oct. 31, 2021	Oct. 30, 2023
Active Loop Antenna (9K-30Mhz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Double-Ridged Waveguide Horn	ETS	3117	00034609	Apr. 21, 2023	Apr. 20, 2025
Double-Ridged Waveguide Horn	ETS	3117	00154520	Sep. 06, 2021	Sep. 05, 2023
Preamplifier Assembly	ETS	3117PA	00225134	Sep. 01, 2022	Sep. 02, 2024
Wideband Antenna	SCHWARZBECK	VULB9168	VULB9168-49 4	Jan. 05, 2023	Jan. 04, 2025
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



7. PEAK OUTPUT POWER

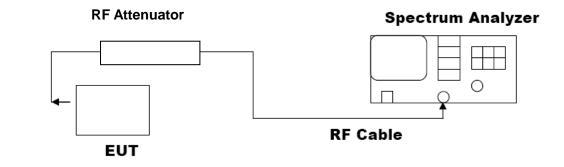
7.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW≥DTS bandwidth
- 3. VBW≥3*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP

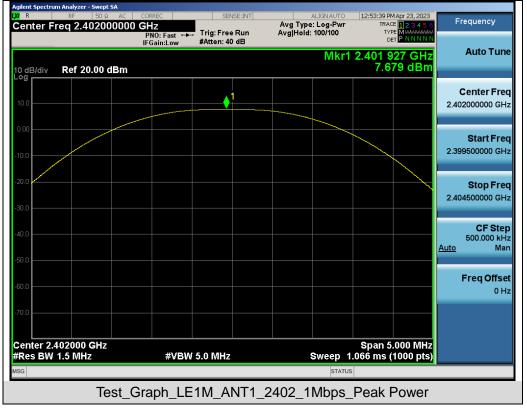




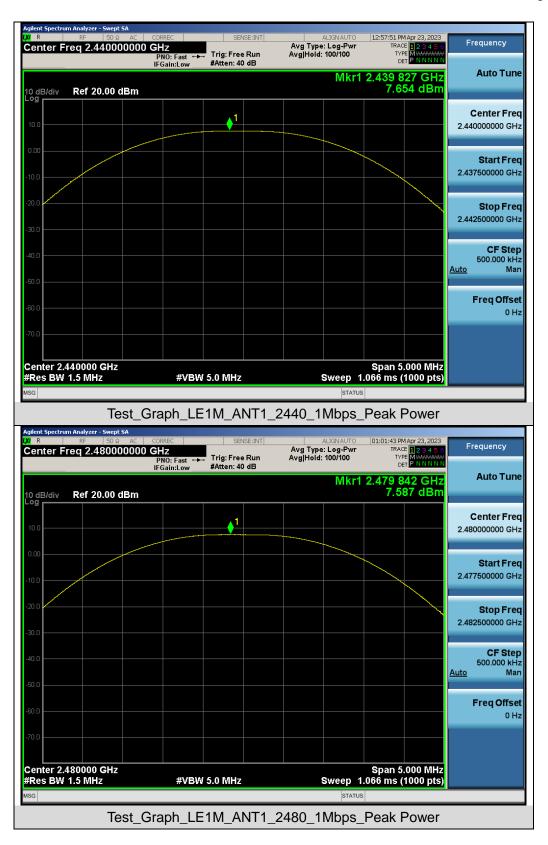
7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power					
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
	2402	7.679	≪30	Pass	
GFSK 1M	2440	7.654	≪30	Pass	
	2480	7.587	≪30	Pass	
	2402	7.777	≪30	Pass	
GFSK 2M	2440	7.828	≪30	Pass	
	2480	7.764	≪30	Pass	

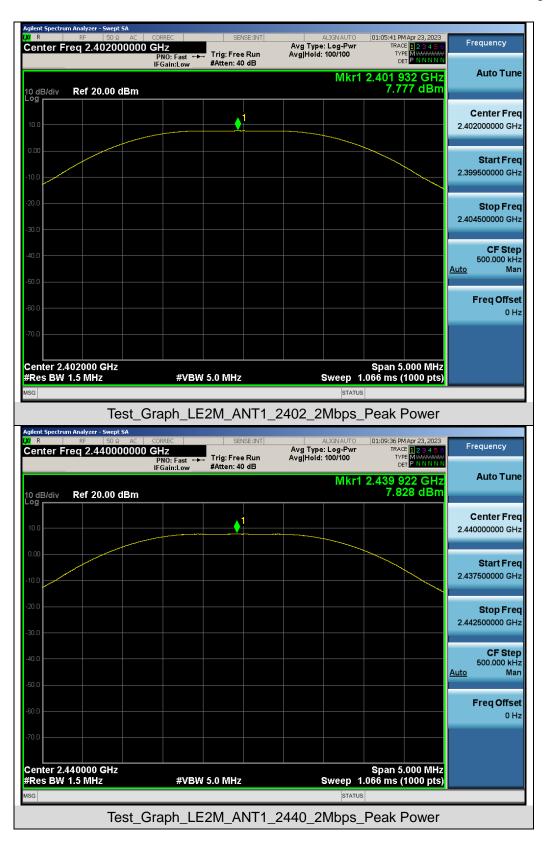
Test Graphs of Conducted Output Power



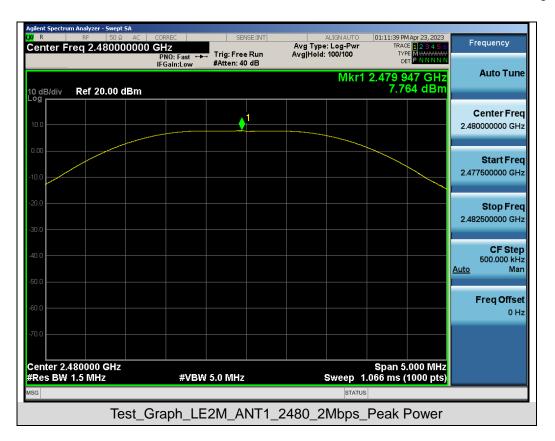














8. BANDWIDTH

8.1. MEASUREMENT PROCEDURE

6dB bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW \ge 3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

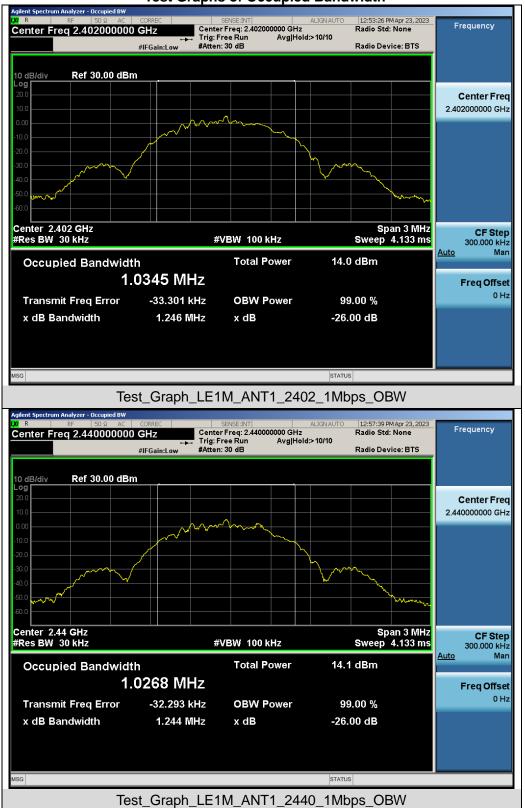
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

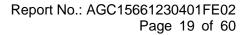
Test Data of Occupied Bandwidth and DTS Bandwidth					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
	2402	1.034	0.656	≥0.5	Pass
GFSK 1M	2440	1.027	0.662	≥0.5	Pass
	2480	1.028	0.662	≥0.5	Pass
GFSK 2M	2402	2.070	1.139	≥0.5	Pass
	2440	2.061	1.143	≥0.5	Pass
	2480	2.058	1.129	≥0.5	Pass

8.3. LIMITS AND MEASUREMENT RESULTS

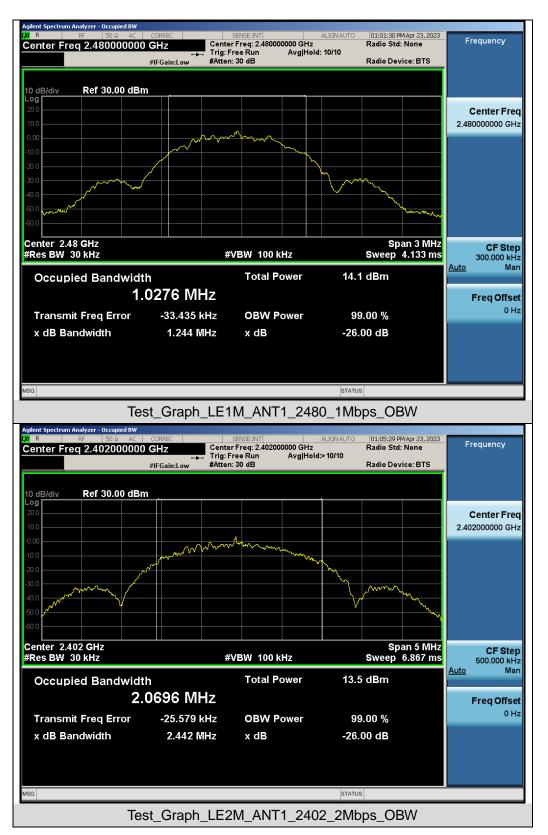


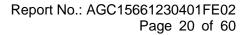


Test Graphs of Occupied Bandwidth





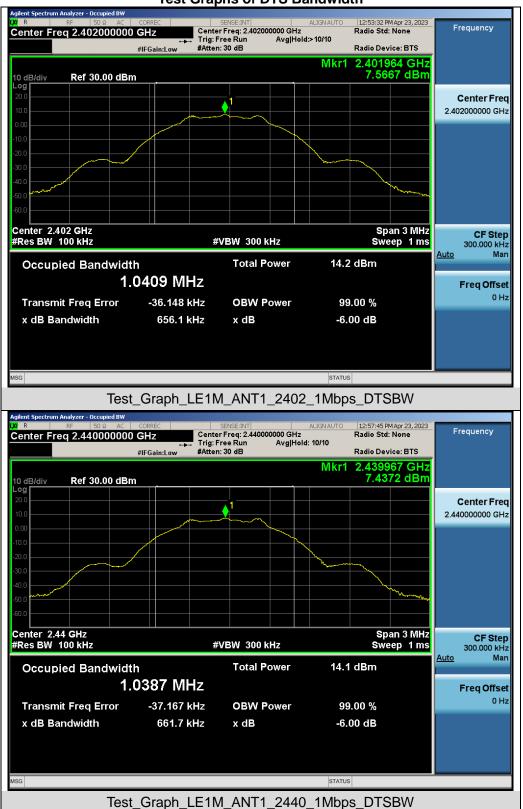






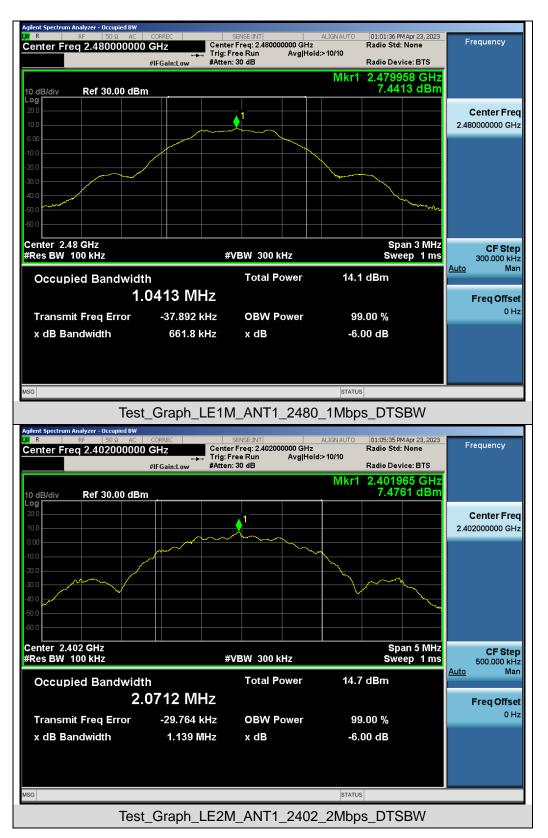






Test Graphs of DTS Bandwidth











9. CONDUCTED SPURIOUS EMISSION

9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

9.4. LIMITS AND MEASUREMENT RESULT

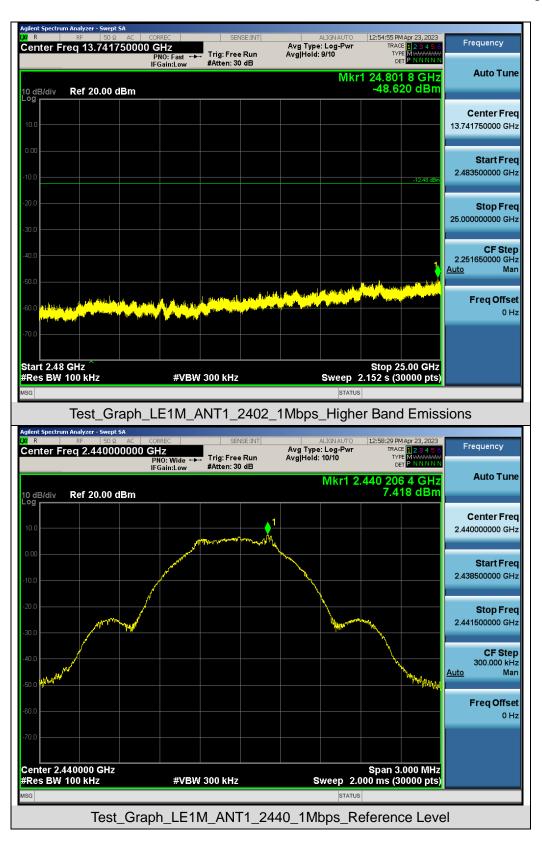
LIMITS AND MEASUREMENT RESULT				
Ampliantia Limita	Measurement Result			
Applicable Limits	Test Data	Criteria		
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS		



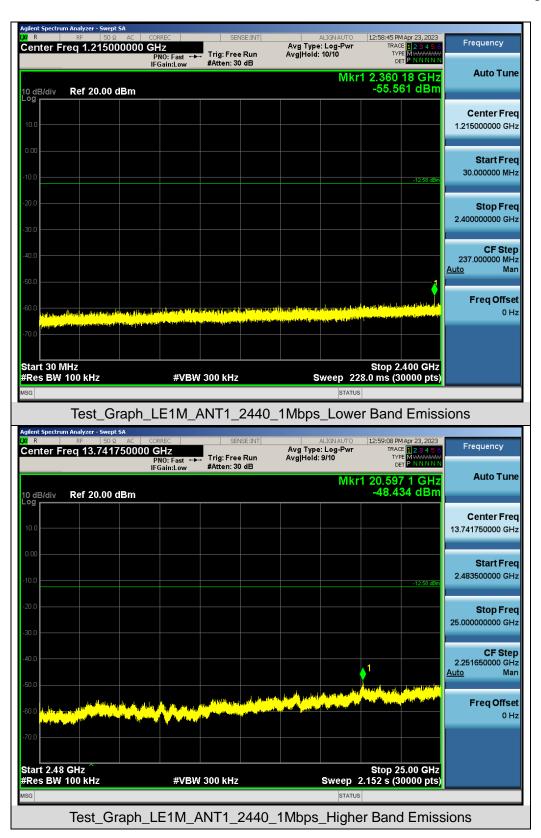


Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

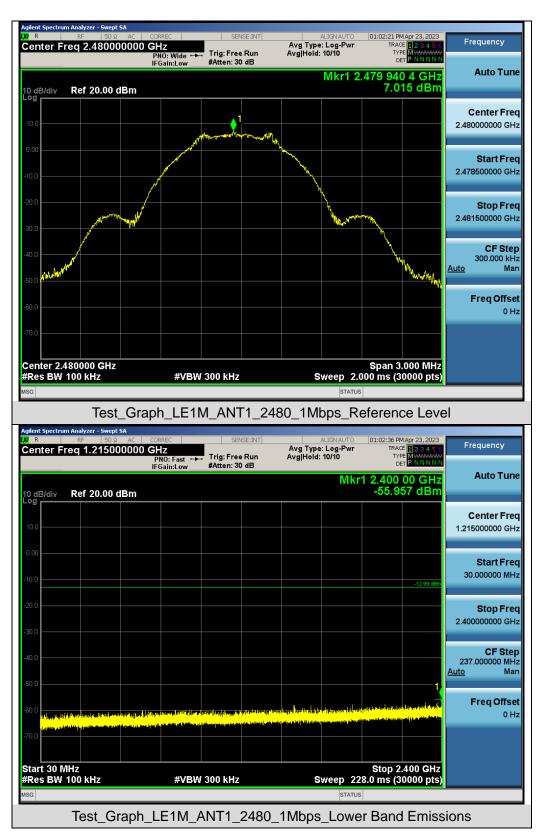




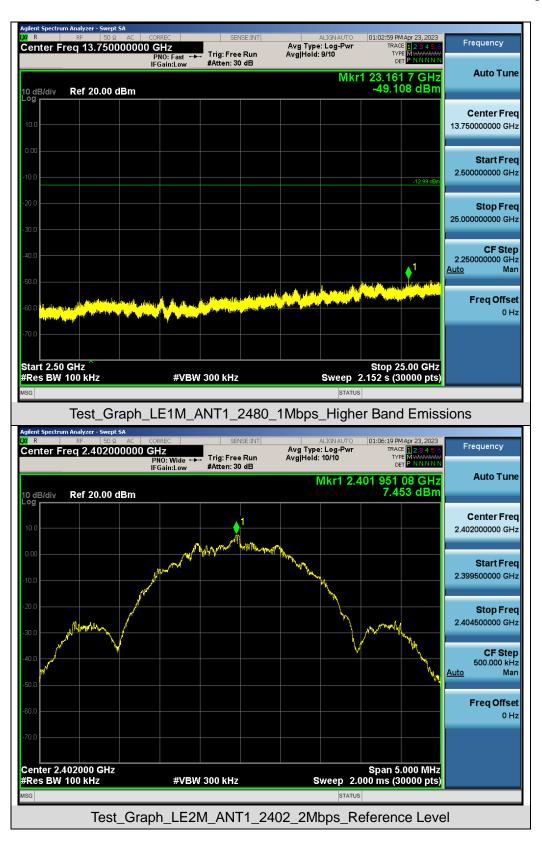




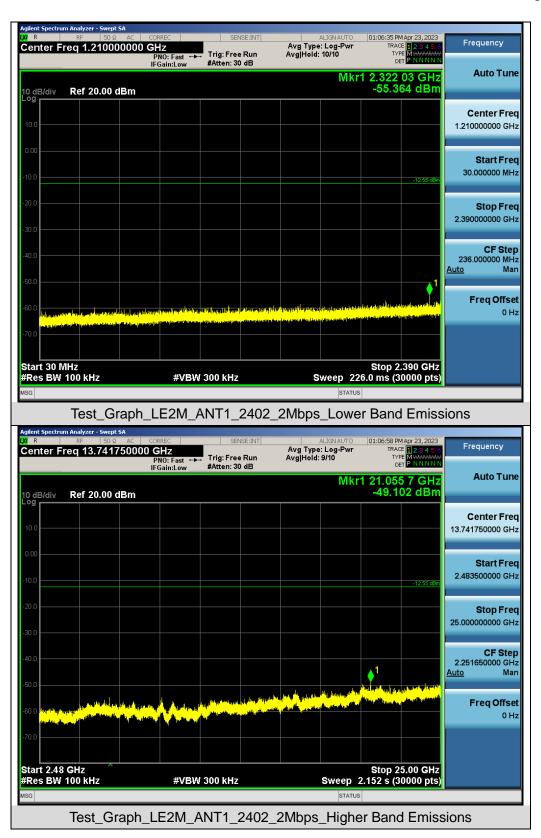




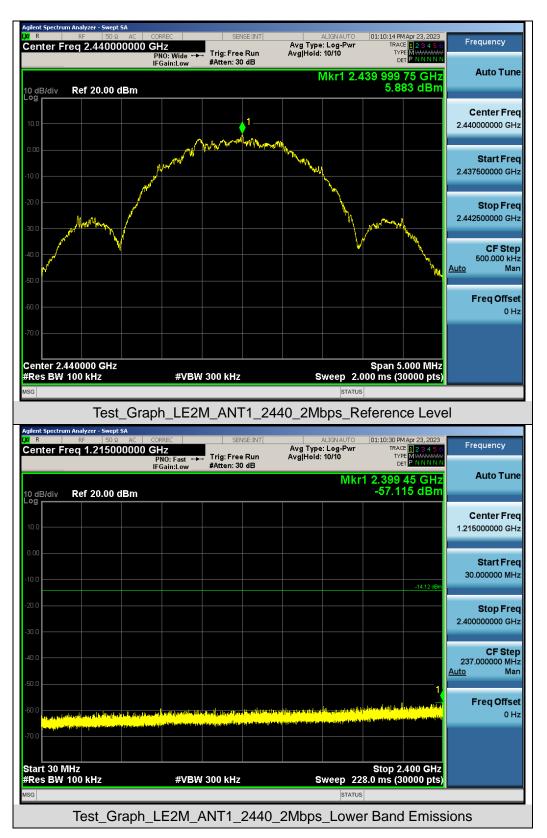




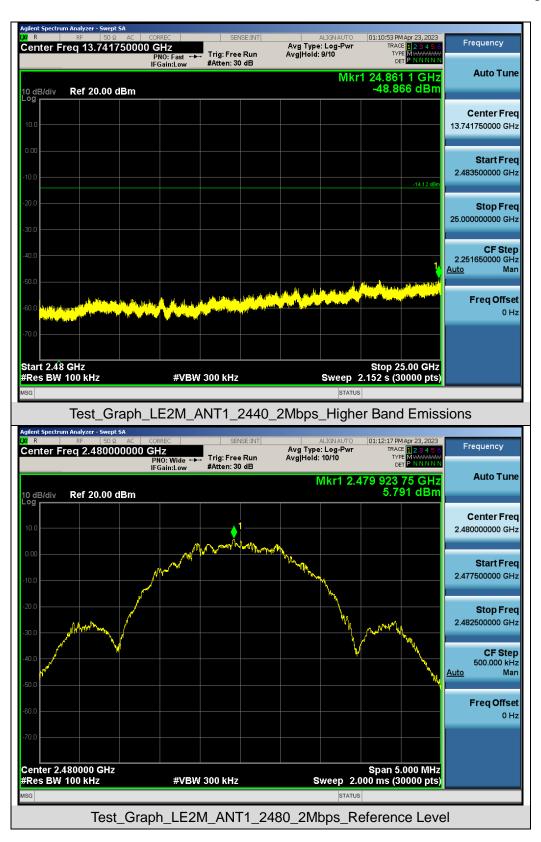




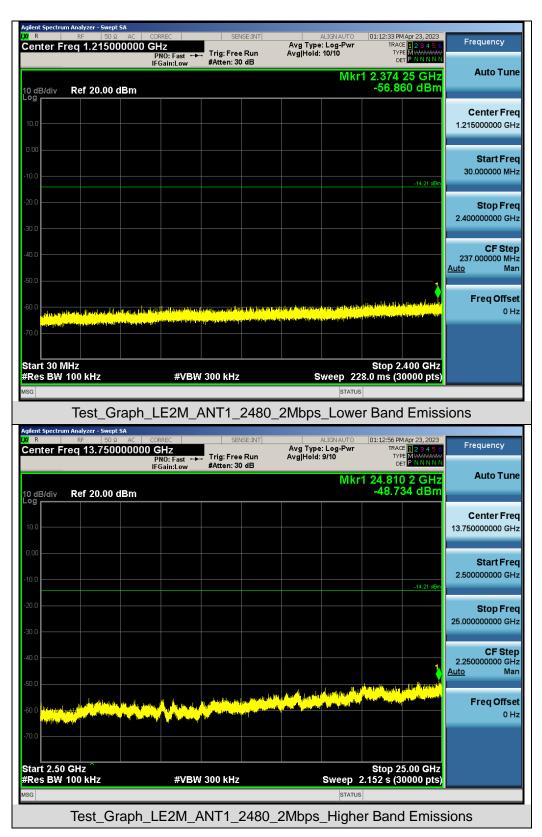




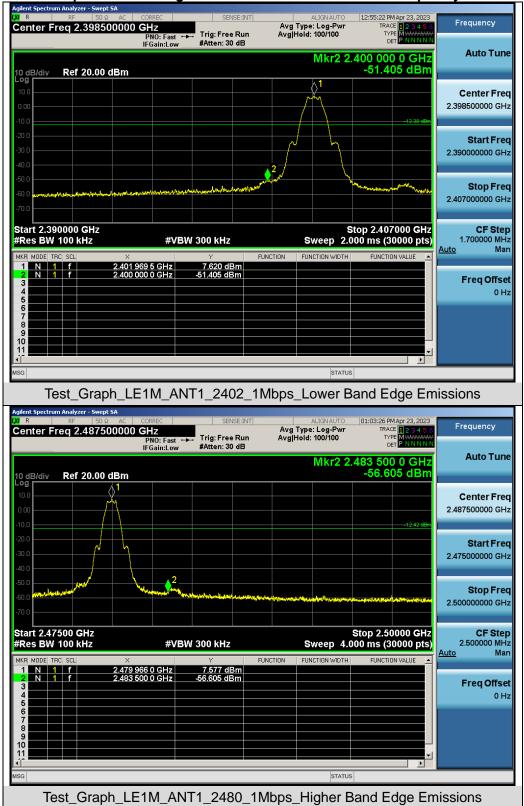












Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands







10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

10.1. MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set the SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 8.4 was used in this testing.

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer to Section 7.2.

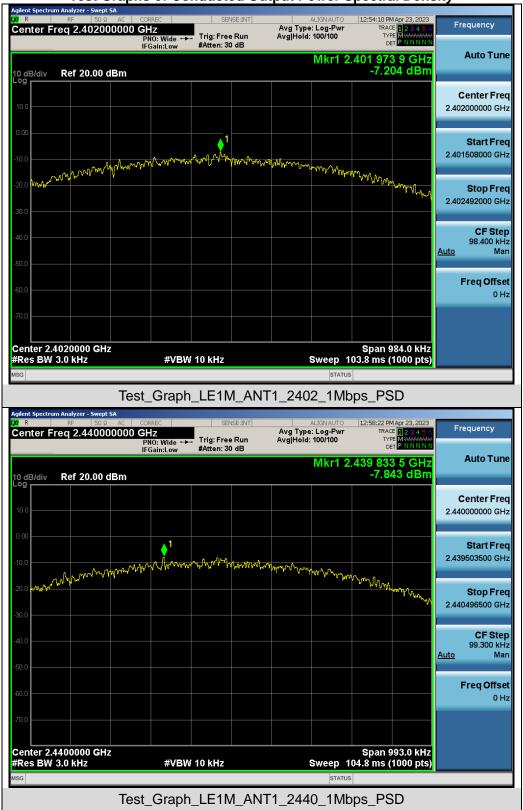
10.3. MEASUREMENT EQUIPMENT USED

Refer to Section 6.

10.4. LIMITS AND MEASUREMENT RESULT

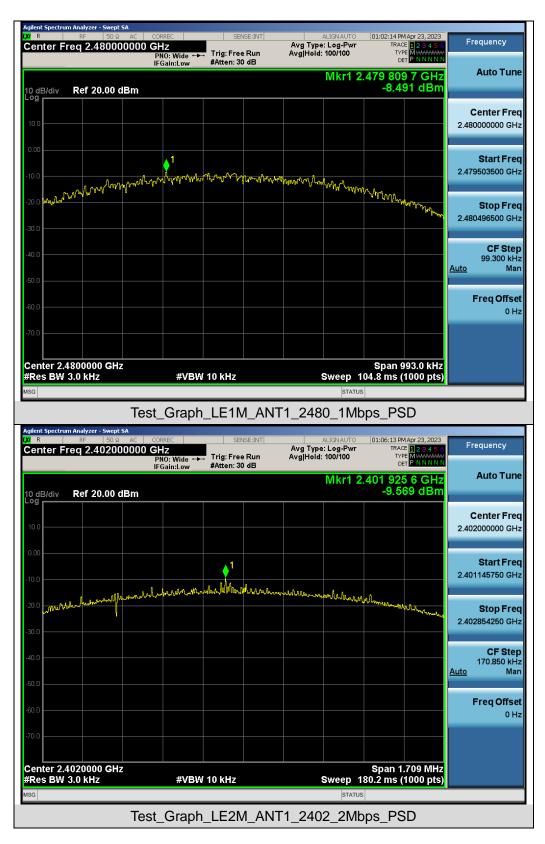
Test Data of Conducted Output Power Spectral Density					
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail	
	2402	-7.204	≤8	Pass	
GFSK 1M	2440	-7.843	≪8	Pass	
	2480	-8.491	≤8	Pass	
	2402	-9.569	≪8	Pass	
GFSK 2M	2440	-9.232	≤8	Pass	
	2480	-8.727	≪8	Pass	



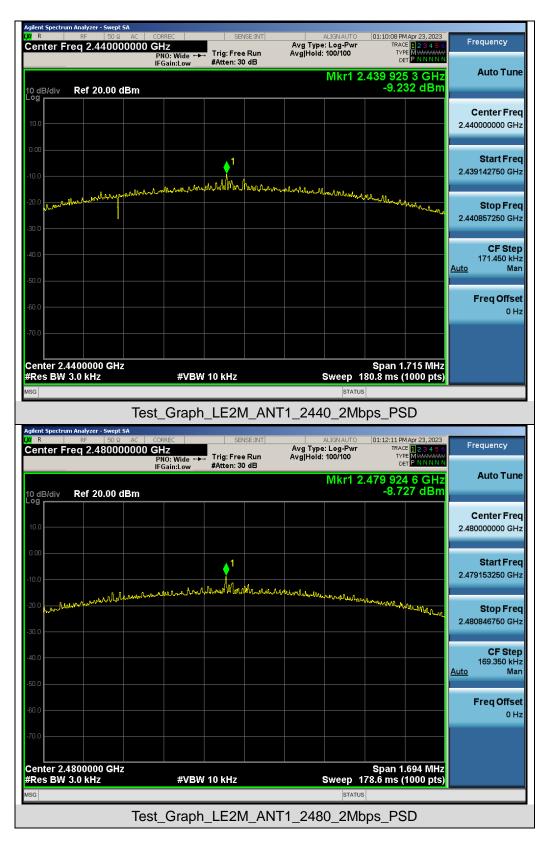


Test Graphs of Conducted Output Power Spectral Density











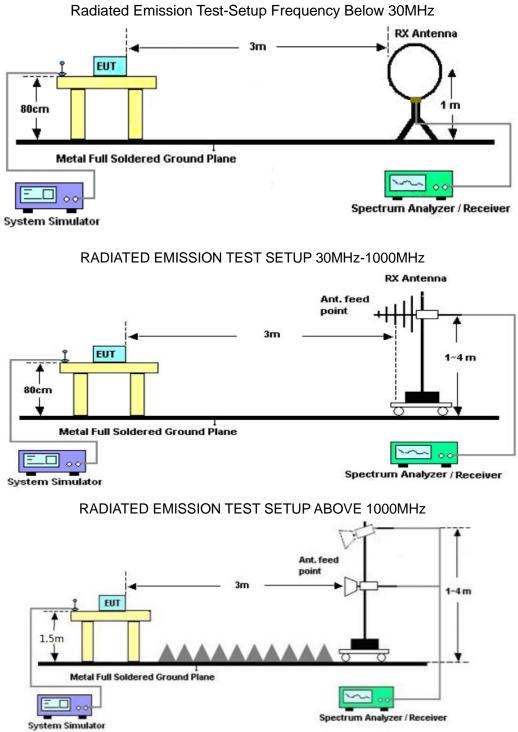
11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.



11.2. TEST SETUP





11.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

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

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.4. TEST RESULT

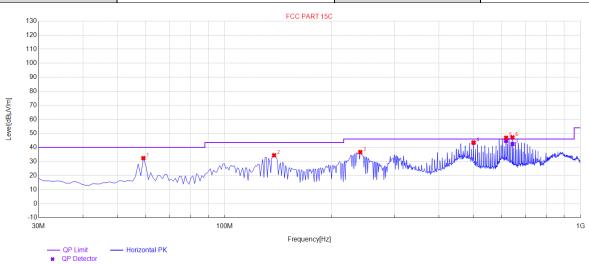
Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor					
Temperature	25° C	Relative Humidity	55.4%					
Pressure	960hPa	Test Voltage	Normal Voltage					
Test Mode	Mode 5	Antenna	Horizontal					

Radiated emission from 30MHz to 1000MHz



Peak data list

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	59.1	32.44	12.74	40.00	7.56	100	61	Horizontal
2	137.67	34.45	14.50	43.50	9.05	100	77	Horizontal
3	240.49	36.72	17.45	46.00	9.28	100	33	Horizontal
4	500.45	43.33	23.83	46.00	2.67	100	215	Horizontal
5	617.82	46.90	28.08	46.00	-0.90	100	199	Horizontal
6	644.01	47.16	24.94	46.00	-1.16	100	45	Horizontal

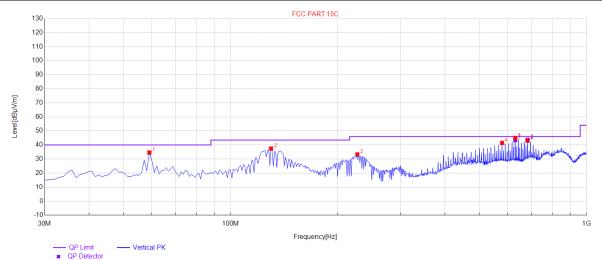
QP data list

	NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
ſ	1	500.45	23.83	43.54	46.00	2.46	100	215	Horizontal
ſ	2	617.82	28.08	44.77	46.00	1.23	100	199	Horizontal
Ī	3	644.01	24.94	42.44	46.00	3.56	100	45	Horizontal

RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 5	Antenna	Vertical



Peak data list

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	59.1	34.62	14.77	40.00	5.38	100	133	Vertical
2	129.91	37.50	18.64	43.50	6.00	100	62	Vertical
3	226.91	33.35	14.70	46.00	12.65	100	3	Vertical
4	579.02	41.46	25.64	46.00	4.54	100	15	Vertical
5	630.43	44.97	26.43	46.00	1.03	100	311	Vertical
6	682.81	43.14	28.03	46.00	2.86	100	283	Vertical

QP data list

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	630.43	26.43	43.50	46.00	2.50	100	311	Vertical
2	682.81	28.03	43.61	46.00	2.39	100	283	Vertical

RESULT: PASS

Note:

1. Factor=Antenna Factor + Cable loss, Margin=Limit-Lever.

2. All test modes had been tested. The mode 5 is the worst case and recorded in the report.



Radiated emission above 1GHz

EUT	Neurosens IMU sensor Model Name		Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type			
4804.000	45.26	0.08	45.34	74	-28.66	peak			
4804.000	36.87	0.08	36.95	54	-17.05	AVG			
7206.000	40.15	2.21	42.36	74	-31.64	peak			
7206.000	31.59	2.21	33.8	54	-20.2	AVG			
Remark:	Remark:								
Factor = Anter	actor = Antenna Factor + Cable Loss – Pre-amplifier.								

EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	46.29	0.08	46.37	74	-27.63	peak
4804.000	36.57	0.08	36.65	54	-17.35	AVG
7206.000	40.15	2.21	42.36	74	-31.64	peak
7206.000	31.26	2.21	33.47	54	-20.53	AVG
lemark:						
actor = Anter	nna Factor + Cabl	e Loss – Pre-	amplifier.			



EUT	Neurosens IMU sensor	IMU sensor Model Name	
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 5	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
4880.000	45.19	0.14	45.33	74	-28.67	peak
4880.000	36.28	0.14	36.42	54	-17.58	AVG
7320.000	40.15	2.36	42.51	74	-31.49	peak
7320.000	32.49	2.36	34.85	54	-19.15	AVG
Remark:						
actor = Anter	nna Factor + Cable	Loss – Pre-	amplifier.			

EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 5	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	46.29	0.14	46.43	74	-27.57	peak
4880.000	36.24	0.14	36.38	54	-17.62	AVG
7320.000	40.55	2.36	42.91	74	-31.09	peak
7320.000	31.59	2.36	33.95	54	-20.05	AVG
Remark:						
actor = Anter	nna Factor + Cabl	e Loss – Pre-a	amplifier.			



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 6	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
4960.000	46.22	0.22	46.44	74	-27.56	peak
4960.000	37.84	0.22	38.06	54	-15.94	AVG
7440.000	41.05	2.64	43.69	74	-30.31	peak
7440.000	32.59	2.64	35.23	54	-18.77	AVG
Remark:						
actor = Anter	nna Factor + Cable	Loss – Pre-	amplifier.			

EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 6	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
46.29	0.22	46.51	74	-27.49	peak
35.28	0.22	35.5	54	-18.5	AVG
41.05	2.64	43.69	74	-30.31	peak
32.54	2.64	35.18	54	-18.82	AVG
	(dBµV) 46.29 35.28 41.05	(dBµV) (dB) 46.29 0.22 35.28 0.22 41.05 2.64	(dBµV) (dB) (dBµV/m) 46.29 0.22 46.51 35.28 0.22 35.5 41.05 2.64 43.69	(dBµV) (dB) (dBµV/m) (dBµV/m) 46.29 0.22 46.51 74 35.28 0.22 35.5 54 41.05 2.64 43.69 74	(dBµV) (dB) (dBµV/m) (dBµV/m) (dB) 46.29 0.22 46.51 74 -27.49 35.28 0.22 35.5 54 -18.5 41.05 2.64 43.69 74 -30.31

RESULT: PASS

Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

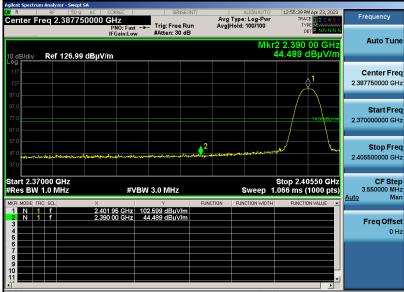
The "Factor" value can be calculated automatically by software of measurement system.



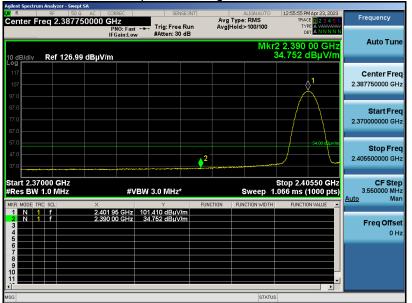
EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Test result for band edge emission at restricted bands

Test Graph for Peak Measurement



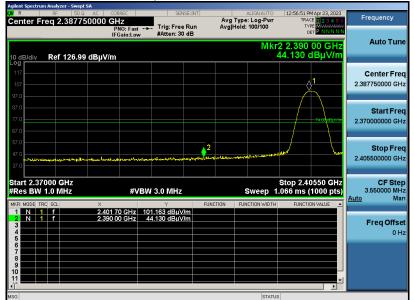
Test Graph for Average Measurement



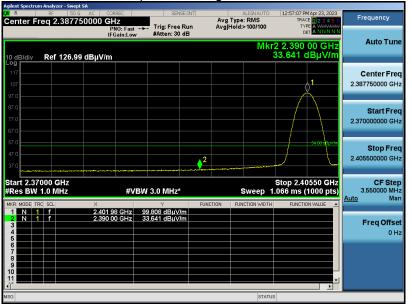
RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



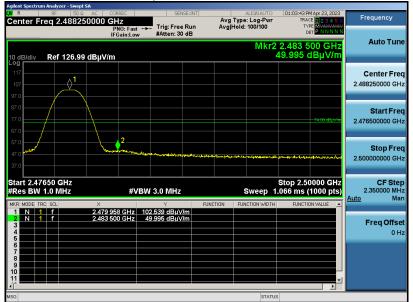
Test Graph for Average Measurement



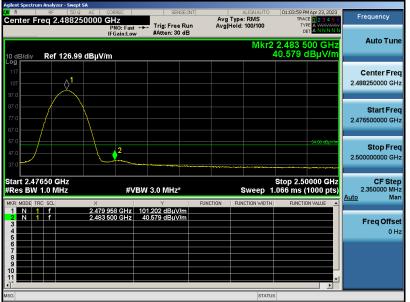
RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



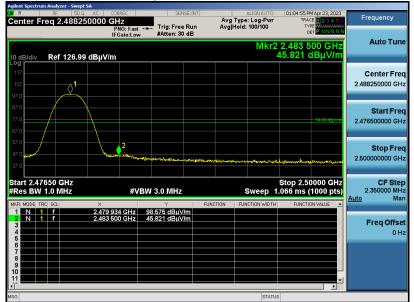
Test Graph for Average Measurement



RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



Test Graph for Average Measurement



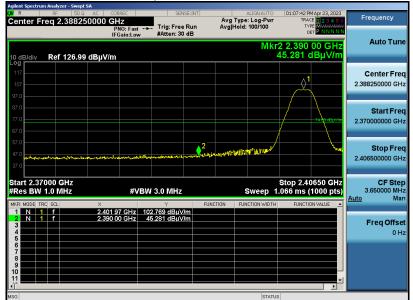
RESULT: PASS



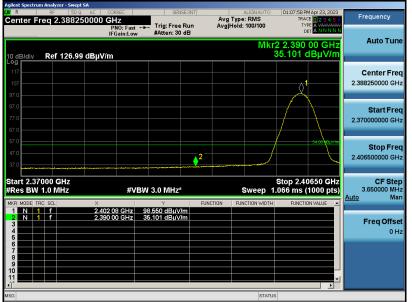
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EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Horizontal

Test Graph for Peak Measurement



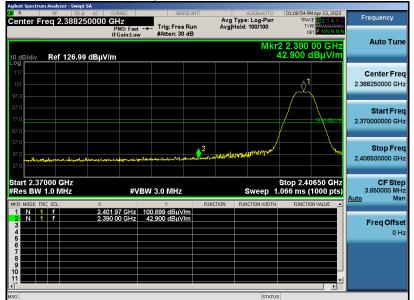
Test Graph for Average Measurement



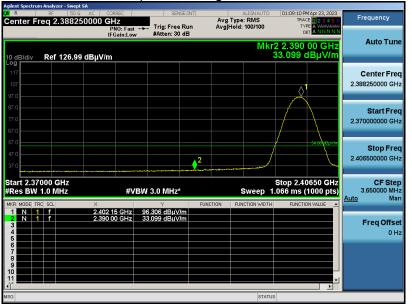
RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Vertical



Test Graph for Average Measurement



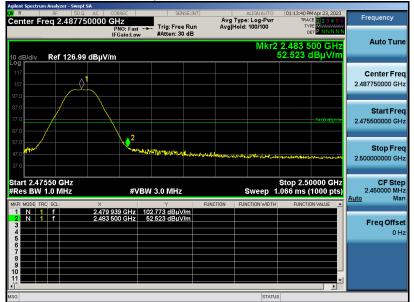
RESULT: PASS



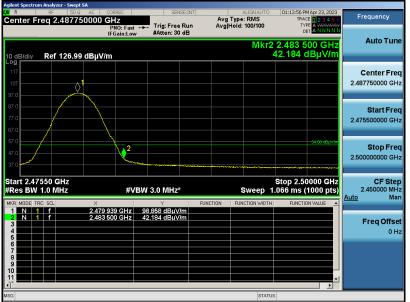
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EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 6	Antenna	Horizontal

Test Graph for Peak Measurement



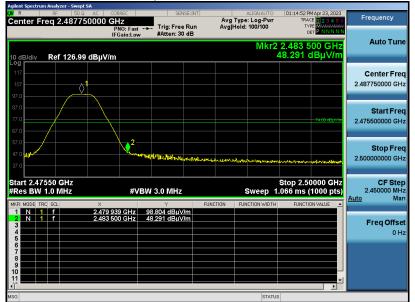
Test Graph for Average Measurement



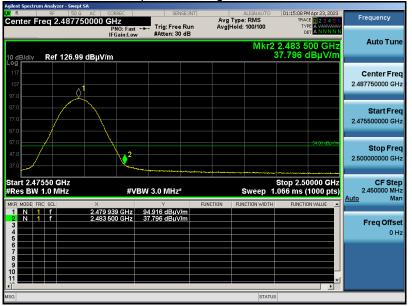
RESULT: PASS



EUT	Neurosens IMU sensor	Model Name	Neurosens IMU sensor
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 6	Antenna	Vertical



Test Graph for Average Measurement



RESULT: PASS

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



12. LINE CONDUCTED EMISSION TEST

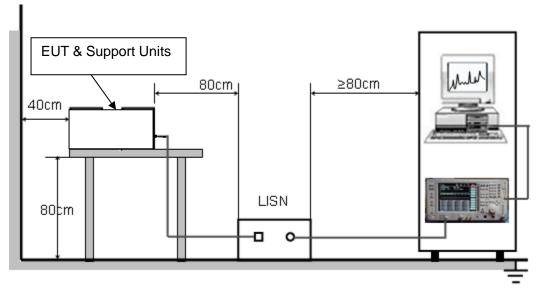
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage				
Frequency	Q.P.(dBuV)	Average(dBuV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

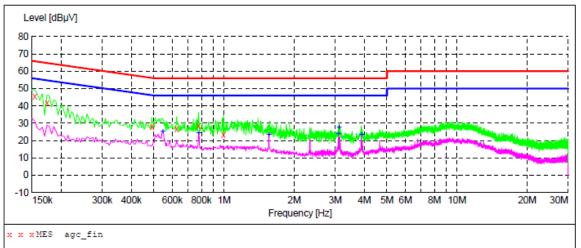
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST



Line Conducted Emission Test Line 1-L



MEASUREMENT RESULT: "agc_fin"

2023/4/23 19:04

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.154000	45.30	6.2	66	20.5	QP	ь1
0.174000	41.70	6.2	65	23.1	QP	L1
0.490000	28.10	6.2	56	28.1	QP	L1
0.626000	26.70	6.2	56	29.3	QP	L1
0.778000	28.30	6.3	56	27.7	QP	L1
0.994000	23.30	6.3	56	32.7	QP	г1

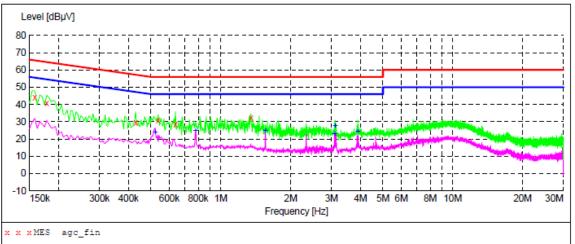
MEASUREMENT RESULT: "agc fin2"

2023/4/23 19:04

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
						_
0.546000	25.10	6.2	46	20.9	AV	ь1
0.778000	24.10	6.3	46	21.9	AV	ь1
1.558000	23.60	6.3	46	22.4	AV	ь1
3.098000	23.90	6.4	46	22.1	AV	L1
3.118000	27.40	6.4	46	18.6	AV	ь1
3.898000	23.30	6.4	46	22.7	AV	L1







MEASUREMENT RESULT: "agc_fin"

2023/4/23 19 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.158000	44.10	6.2	66	21.5	QP	N
0.178000	40.90	6.2	65	23.7	QP	N
0.430000	29.60	6.2	57	27.7	QP	N
0.538000	31.10	6.2	56	24.9	QP	N
0.638000	28.70	6.3	56	27.3	QP	N
1.350000	32.50	6.3	56	23.5	QP	Ν

MEASUREMENT RESULT: "agc_fin2"

2023/4/23	19:00					
Frequen M	cy Level Hz dBµV		Limit dBµV	Margin dB	Detector	Line
0.5220	00 23.80	6.2	46	22.2	AV	N
0.7780	00 24.70	6.3	46	21.3	AV	N
1.5580	00 24.70	6.3	46	21.3	AV	N
3.0940	00 23.00	6.4	46	23.0	AV	Ν
3.1180	00 27.80	6.4	46	18.2	AV	N
3.8980	00 24.50	6.4	46	21.5	AV	N

RESULT: PASS

Note: All the test modes had been tested, the mode 5 was the worst case. Only the data of the worst case would be record in this test report.



APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC15661230401AP01

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC15661230401AP02

----END OF REPORT----



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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

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