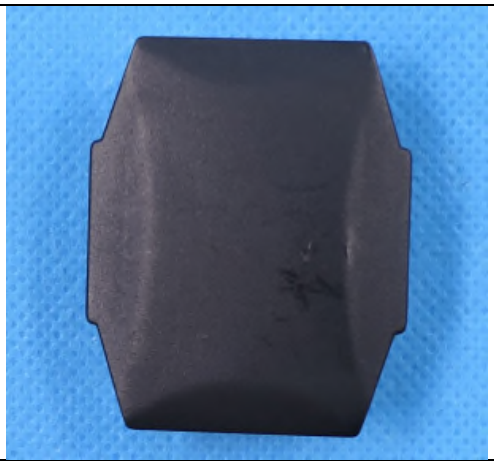
Prüfbericht-Nr.: *Test report No.:*	**CN21QVBR 001**	**Auftrags-Nr.:** *Order No.:*	170276130	Seite 1 von 22 *Page 1 of 22*
Kunden-Referenz-Nr.: *Client reference No.:*	N/A	**Auftragsdatum:** *Order date.:*	28.05.2021	
Auftraggeber: *Client:*	**Electronic Precepts, Inc** 10401 Belcher Rd S Seminole, FL 33777, United States			
Prüfgegenstand: *Test item:*	Bracelet			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	NET-50			
Auftrags-Inhalt: *Order content:*	FCC approval			
Prüfgrundlage: *Test specification:*	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 D01 v06			
Wareneingangsdatum: *Date of receipt:*	08.05.2021			
Prüfmuster-Nr.: *Test sample No.:*	170276130-001			
Prüfzeitraum: *Testing period:*	Refer to test report			
Ort der Prüfung: *Place of testing:*	Refer to section 2.1			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Guangdong) Co., Ltd.			
Prüfergebnis*: *Test result*:*	Pass			



geprüft von / *tested by:*

28.05.2021 Storm Shu / Project Manager

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*

kontrolliert von / *reviewed by:*

28.05.2021 Amy Wang / Technical Certifier

Datum *Date*	Name/Stellung *Name/Position*	Unterschrift *Signature*

Sonstiges / *Other:*

FCC ID: 2AO3I-NET50

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:* Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	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 specifications(s)		F(ail) = failed a.m. test specifications(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.

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.

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER
RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 6DB BANDWIDTH
RESULT: Pass

5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH
RESULT: Pass

5.1.6 RADIATED SPURIOUS EMISSION
RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION
RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS
RESULT: Pass

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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 A: Test setup and test equipment
Appendix B: Test Results

2 Test Sites

2.1 Test Facilities

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC Designation No.: 625569

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
Active loop Antenna	ZHINAN	ZN30900C	16035	2019.07.11	2021.07.10
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2019.10.15	2021.10.14
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
LISN	R&S	ENV216	101242	2020.10.12	2021.10.11
LISN	EMCO	3810/2NM	23625	2020.10.12	2022.10.11
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Power Sensor	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
			MY55520006	2020.10.10	2021.10.09
			MY56120038	2020.10.10	2021.10.09
			MY56280002	2020.10.10	2021.10.09
Signal Analyzer	Agilent	N9020A	MY51110105	2021.03.04	2022.03.03
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

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 basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The reported uncertainty of measurement **y** ± **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** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 9K-30MHz	±2.84dB
4	All emissions, radiated 30M-1GHz	±4.39dB
5	All emissions, radiated 1G-6GHz	±5.10dB
6	All emissions, radiated>6G	±5.48dB
7	Conducted Emission (9KHz-150KHz)	±2.79dB
8	Conducted Emission (150KHz-30MHz)	±2.80dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix B of this report and delivered to the applicant. A copy has been retained in the SHENZHEN STS TEST SERVICES CO., LTD file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

SHENZHEN STS TEST SERVICES CO., LTD is listed on the US Federal Communications Commission list of facilities approved to perform measurements, whose designation number is 625569.

3 General Product Information

3.1 Product Function and Intended Use

The NET-50 is a Bluetooth Low Energy (BLE) wearable bracelet that helps the user maintain social distancing by alerting the user when another person wearing a NET-50 is less than 6 feet.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Bracelet
Type Designation	NET-50
Trade Mark	N/A
FCC ID	2AO3I-NET50
Operating Frequency	2402 - 2480 MHz
Operating Temperature Range	-10ºC to +80ºC
Operating Voltage	USB DC 5V DC 3.7V Li-lion Battery
Testing Voltage	DC 3.7V
Type of Modulation	GFSK
Channel Number	40 channels
Channel Separation	2MHz
Wireless Technology	Bluetooth 5.0 (Single mode)
Antenna Type	PCB Antenna
Antenna Gain	0 dBi

Table 3: RF Channel and Frequency of Bluetooth Low Energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	**2402.00**	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	**19**	**2440.00**	29	2460.00	**39**	**2480.00**

3.3 Independent Operation Modes

The basic operation modes are:

A. On
   1. Bluetooth transmitting mode (Low Energy mode)
      a) Low Channel
      b) Middle Channel
      c) High Channel

B. On, Bluetooth connecting mode

C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- FCC/IC Label and Location Info
- Model Difference Letter
- Operation Description
- Photo Document
- Schematics
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation 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 C63.10: 2013 and ANSI C63.4: 2014

According to clause 3.1, all tests were performed on model NET-50 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 4: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Notebook Adapter	LENOVO	ADLX45DLC3A	N/A	N/A
Notebook	LENOVO	ThinkPad E470	N/A	N/A
Adapter	HUAWEI	HW-050450C00	N/A	N/A
USB Cable	N/A	N/A	80cm	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 Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

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

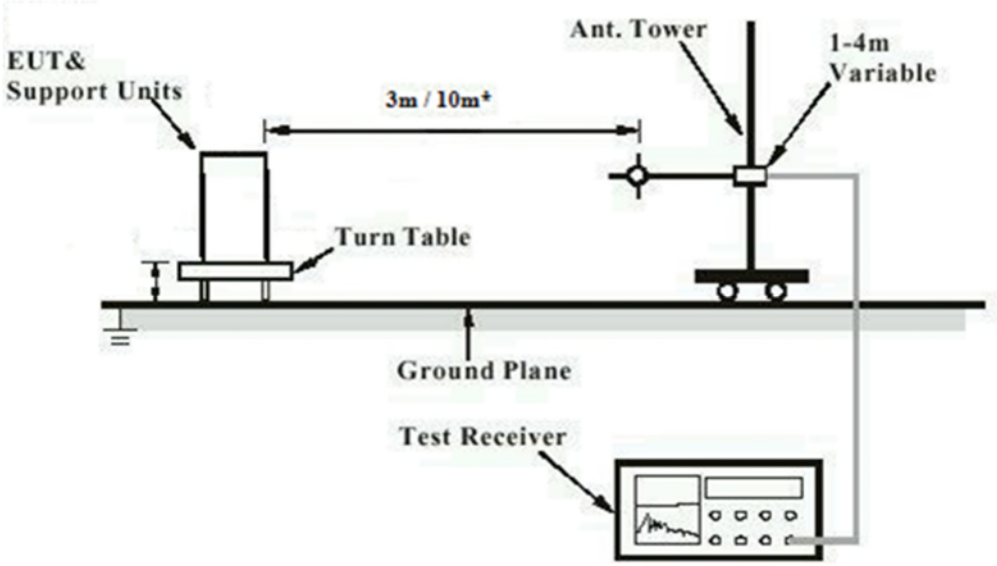


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

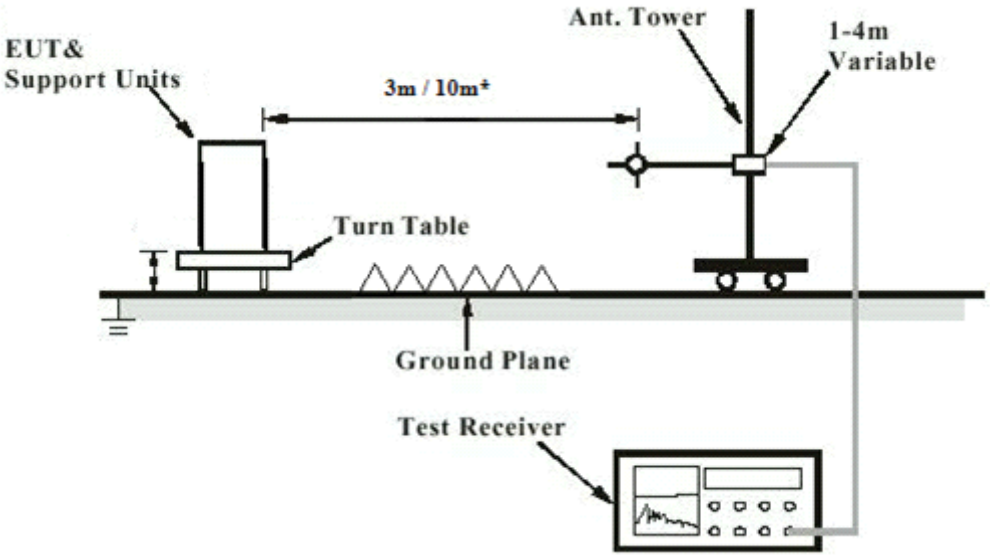


Diagram of Measurement Configuration for Mains Conduction Measurement

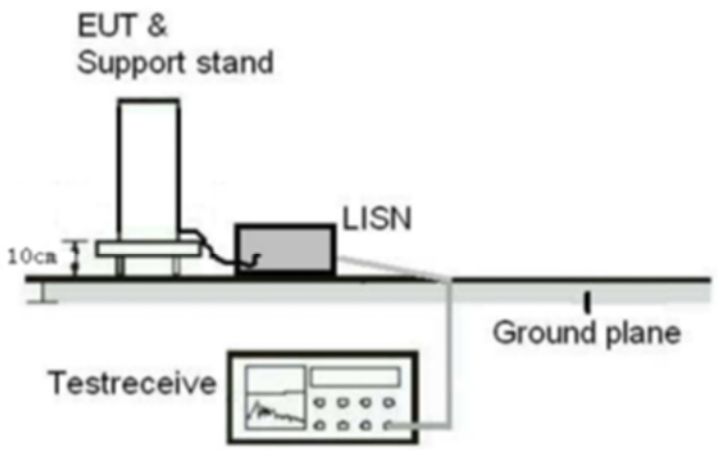
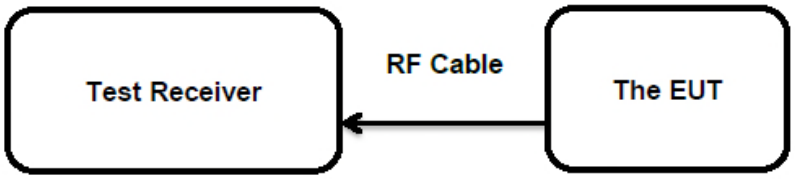


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has an PCB antenna, the directional gain of antenna is 0 dBi, 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.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(b)(1)&(3)
Basic standard	:	ANSI C63.10: 2013
Limits	:	FHSS < 0.125 Watts, DSSS < 1.0 Watts
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	25.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Table 5: Test Result of Maximum Peak Conducted Output Power

BLE
1M PHY

Test Channe	Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH0	2402	-6.96	-15.83	30
CH19	2440	-7.41	-15.68	30
CH39	2480	-6.91	-15.72	30

2M PHY

Test Channe	Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH0	2402	-6.97	-17.99	30
CH19	2440	-7.41	-17.84	30
CH39	2480	-7.10	-17.90	30

Note: The cable loss 0 dB is taken into account in results.

This testing was carried out on all operation modes, but only the worst case was presented in this report.

5.1.3 Conducted Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(e)
Basic standard	:	ANSI C63.10: 2013
Limits	:	8 dBm/3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	25.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Table 6: Test Result of Power Spectral Density, Low Energy

BLE
1M PHY

Frequency	Power Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
2402 MHz	-23.697	≤8	PASS
2440 MHz	-24.051	≤8	PASS
2480 MHz	-23.788	≤8	PASS

2M PHY

Frequency	Power Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
2402 MHz	-25.592	≤8	PASS
2440 MHz	-26.093	≤8	PASS
2480 MHz	-25.662	≤8	PASS

Note: The cable loss 0 dB is taken into account in results.

For the measurement plot, refer to the appendix B.

5.1.4 6dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	More than 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	25.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Table 7: Test Result of 6dB Bandwidth, Low Energy

BLE
1M PHY

Frequency	6dB Bandwidth (KHz)	Limit (KHz)	Result
2402 MHz	542.000	≥500KHz	PASS
2440 MHz	572.600	≥500KHz	PASS
2480 MHz	565.200	≥500KHz	PASS

2M PHY

Frequency	6dB Bandwidth (KHz)	Limit (KHz)	Result
2402 MHz	848.600	≥500KHz	PASS
2440 MHz	847.800	≥500KHz	PASS
2480 MHz	850.600	≥500KHz	PASS

For the measurement plot, refer to the appendix B.

5.1.5 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d)
Basic standard	:	ANSI C63.10: 2013
Limits	:	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	:	Shielded Room

Test Setup

Date of testing	:	25.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement plot, refer to the appendix B.

5.1.6 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	25.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Remark:
The Radiated Spurious Emission was carried out within frequency range 9kHz – 30MHz and 18GHz - 26.5GHz, and the measurements with active antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

For the measurement records, refer to the appendix B.

5.1.7 Conducted Emission on AC Mains

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.207(a) & FCC Part 15.107(a)
Basic standard	:	ANSI C63.10: 2013 & ANSI C63.4: 2014
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) & FCC Part 15.107(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	11.05.2021
Input voltage	:	Powered by PC
Operation mode	:	B
Earthing	:	N/A
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.8 Radiated Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC part 15.209
Basic standard	:	ANSI C63.4: 2014
Frequency range	:	30 MHz – 26GHz
Limits	:	FCC part 15.209
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	26.05.2021
Input voltage	:	DC 3.7V
Operation mode	:	B
Earthing	:	N/A
Ambient temperature	:	26.5 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT: **Pass**

Test Specification

Test standard	:	CFR47 FCC Part 2.1093
		FCC KDB Publication 447498 D01 v06

Measurement Record:

The minimum distance for the EUT is less than 5mm.

Since maximum peak output power of the transmitter is -6.91 dBm ≈ 0.204 mW < $\frac{3*d}{\sqrt{f}}$ = 9.52 mW.

Hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01 General RF Exposure Guidance v06.

7 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

8 List of Tables

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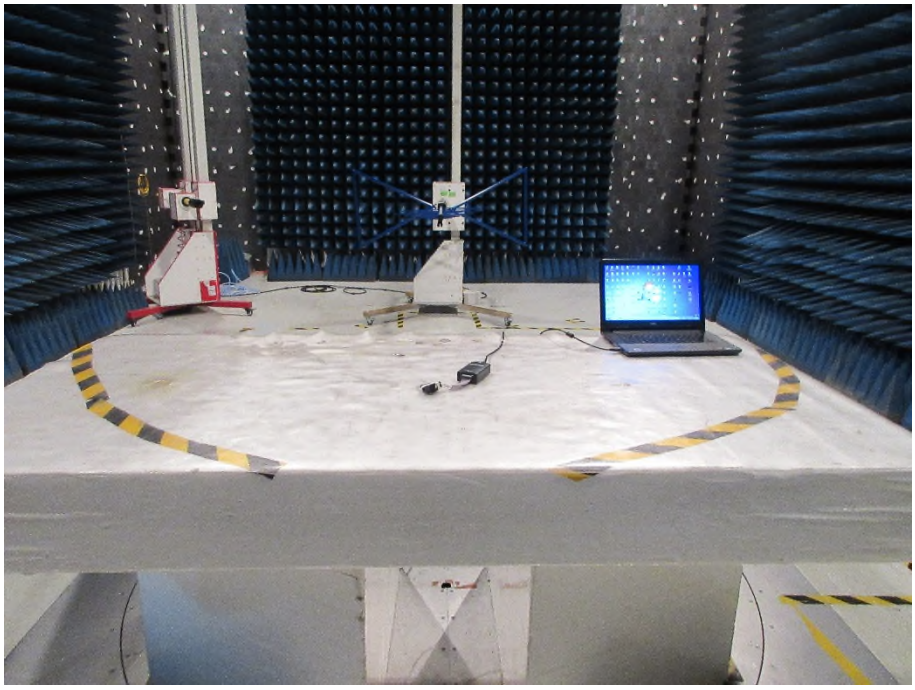
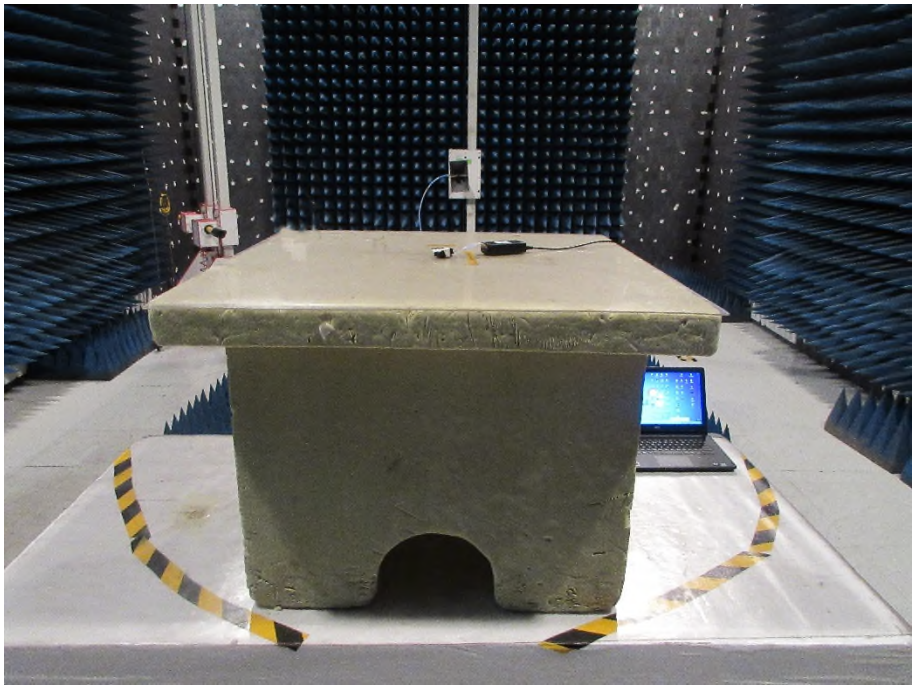
Appendix A: Photographs of the Test Set-Up

APPENDIX A.1: PHOTOGRAPHS OF THE TEST SET-UP 1
PHOTOGRAPH 1: SET-UP FOR RADIATED SPURIOUS EMISSION, 30MHZ - 1GHZ 2
PHOTOGRAPH 2: SET-UP FOR RADIATED SPURIOUS EMISSION, ABOVE 1G 2
PHOTOGRAPH 4: SET-UP FOR CONDUCTED EMISSION ON AC MAINS 3

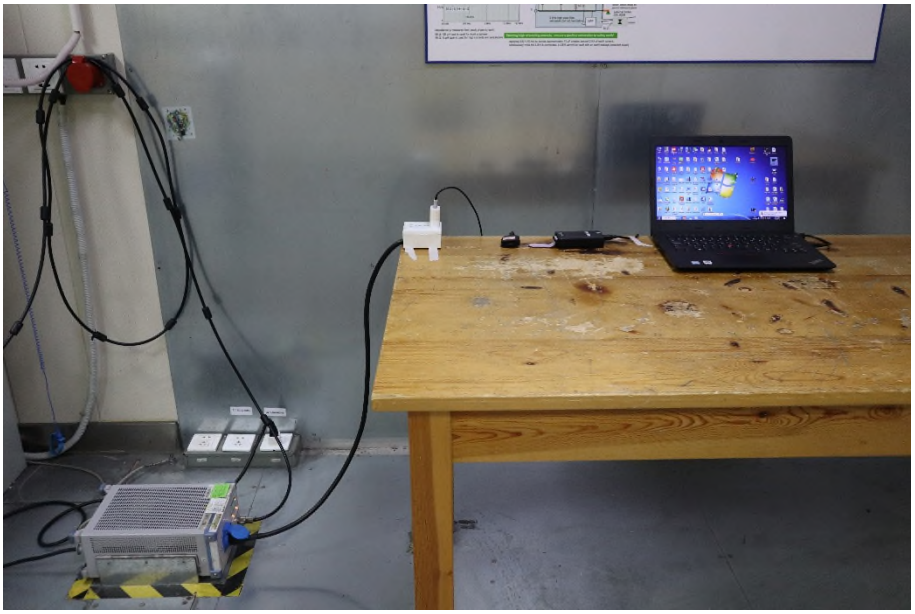
Photograph 1: Set-up for Radiated Spurious Emission, 30MHz - 1GHz



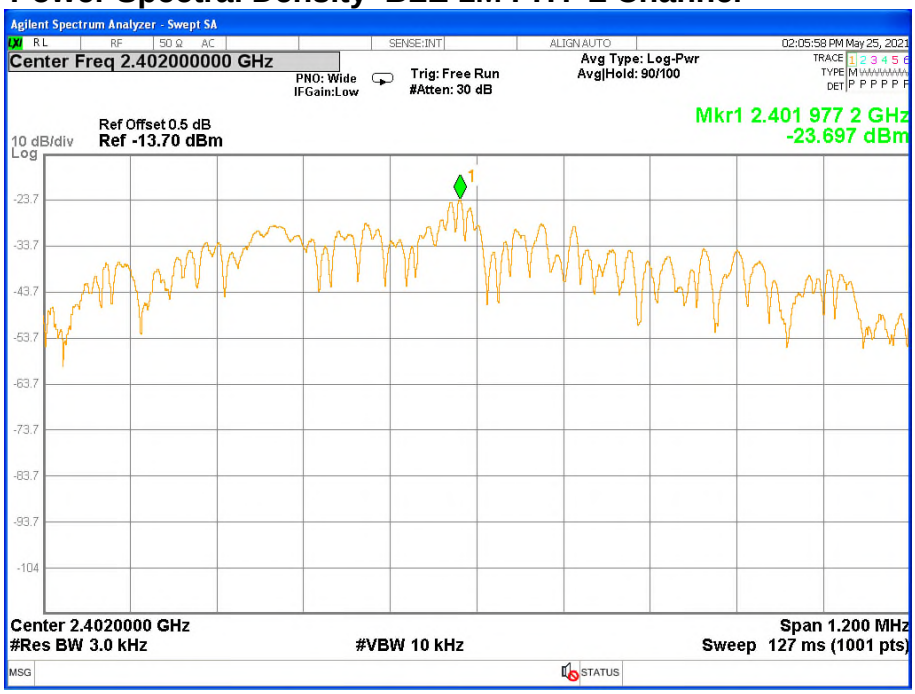
Photograph 2: Set-up for Radiated Spurious Emission, ABOVE 1G



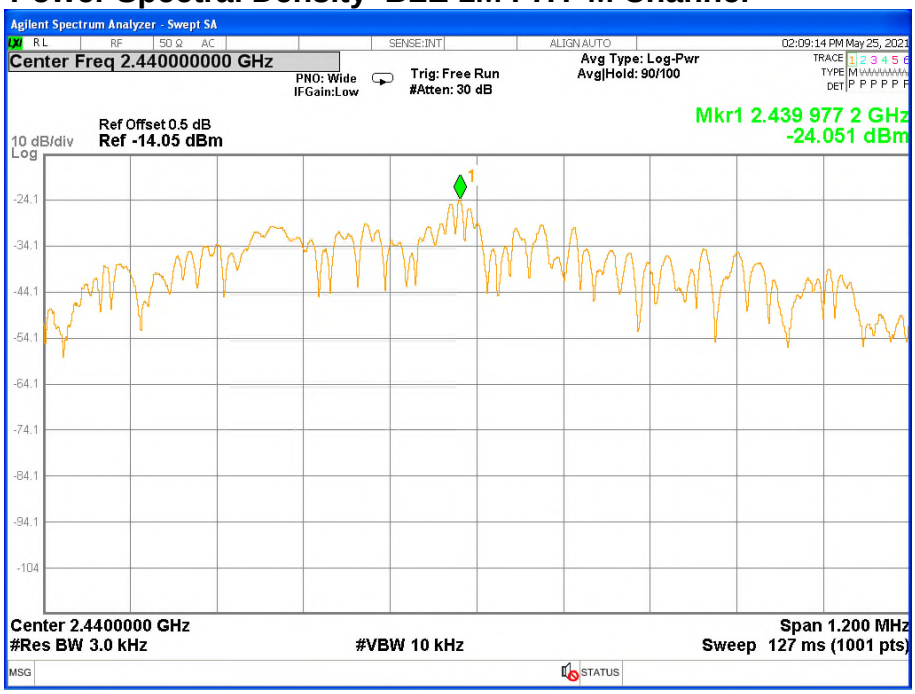
Photograph 3: Set-up for Conducted Emission on AC Mains



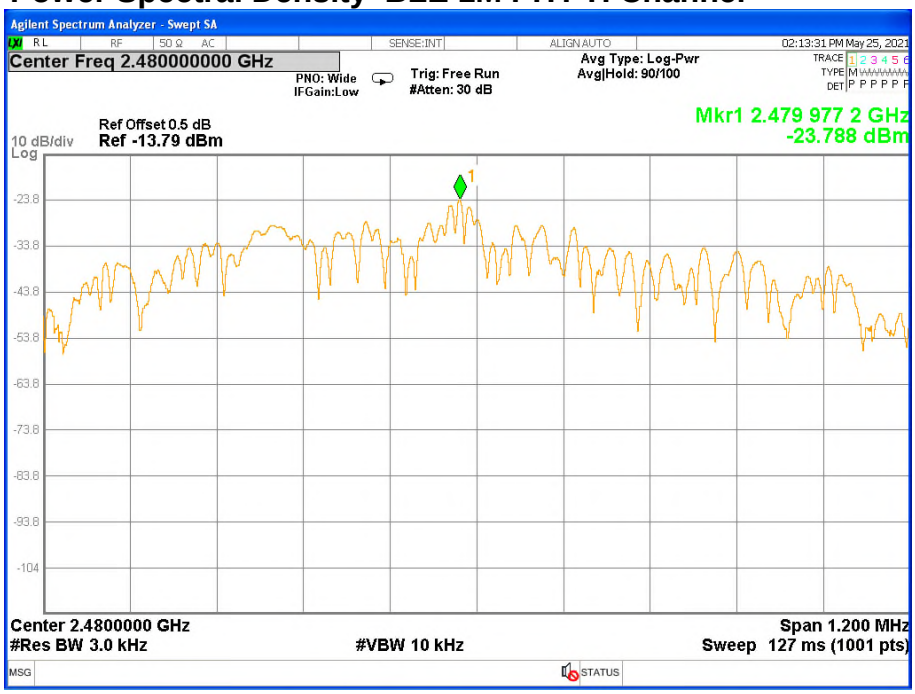
Conducted Power Spectral Density–BLE 1M PHY-L Channel



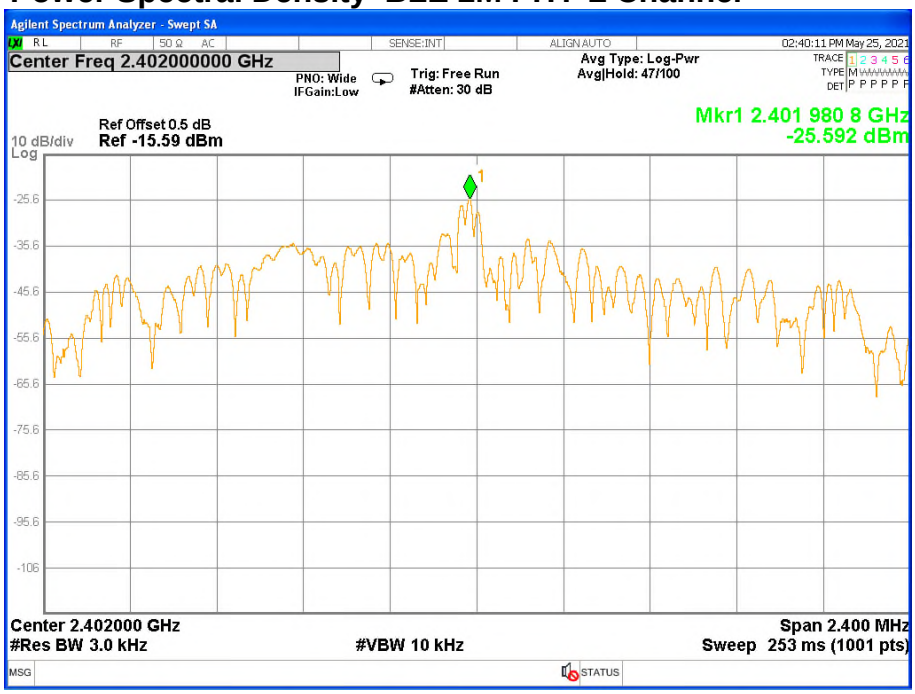
Conducted Power Spectral Density–BLE 1M PHY-M Channel



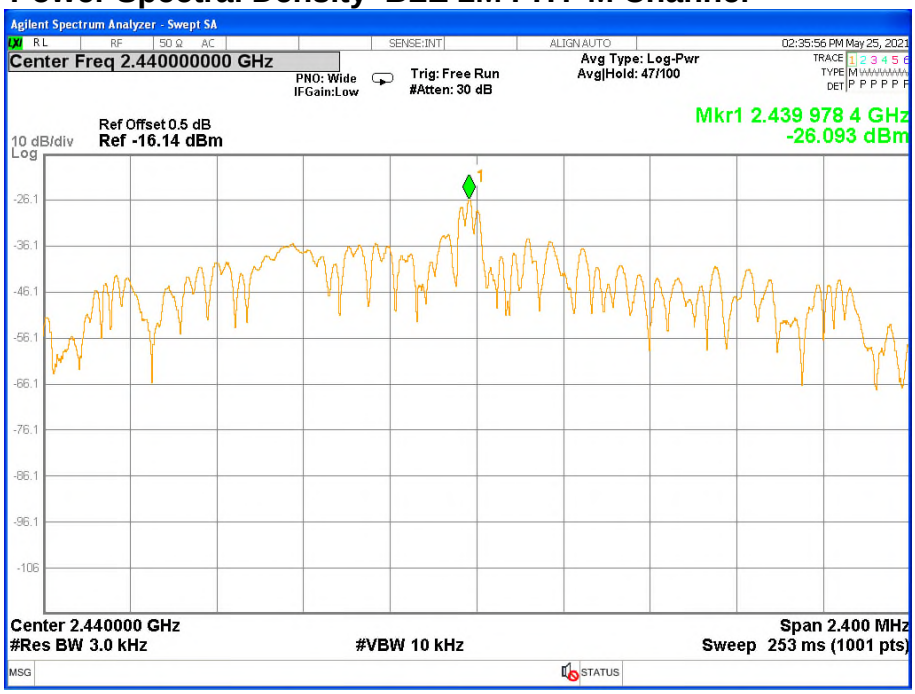
Conducted Power Spectral Density–BLE 1M PHY-H Channel



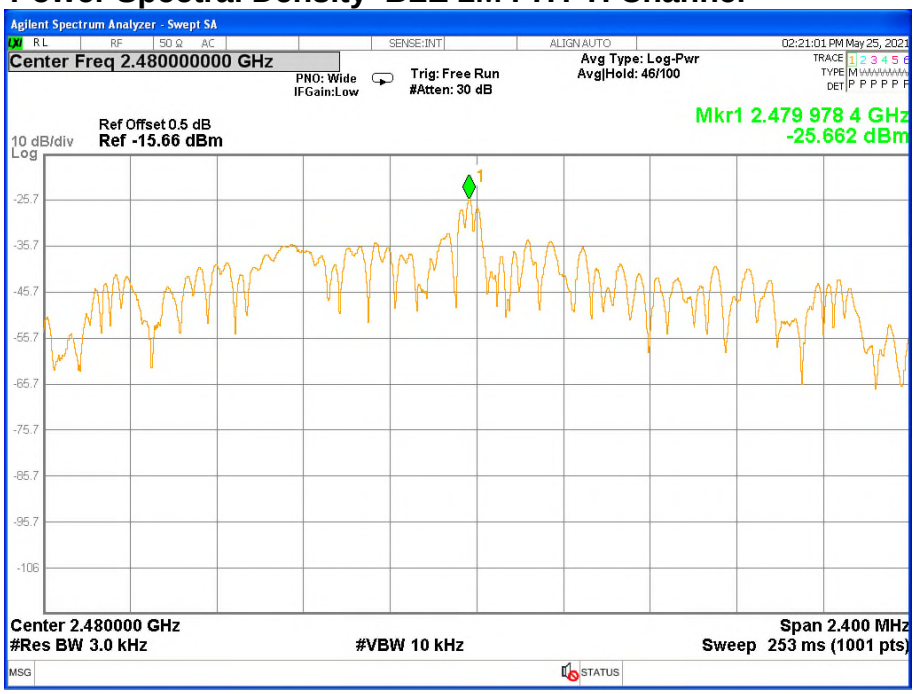
Conducted Power Spectral Density–BLE 2M PHY-L Channel



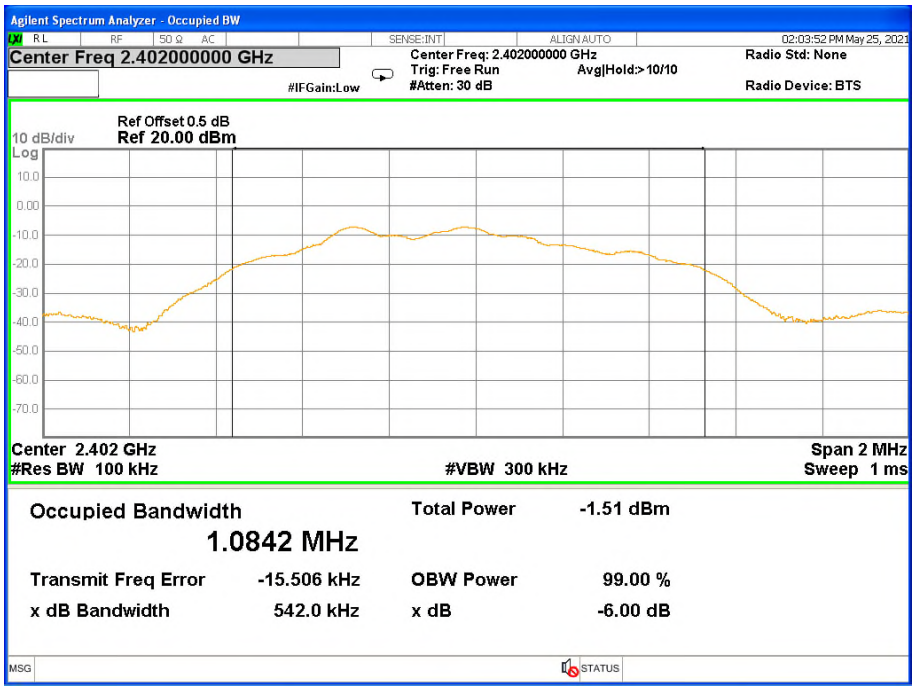
Conducted Power Spectral Density–BLE 2M PHY-M Channel



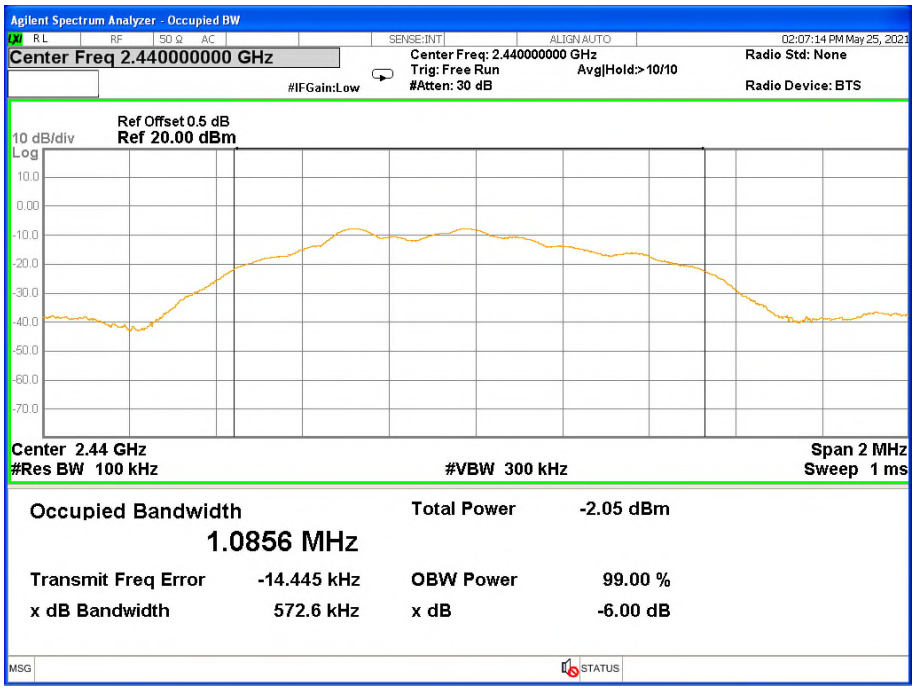
Conducted Power Spectral Density–BLE 2M PHY-H Channel



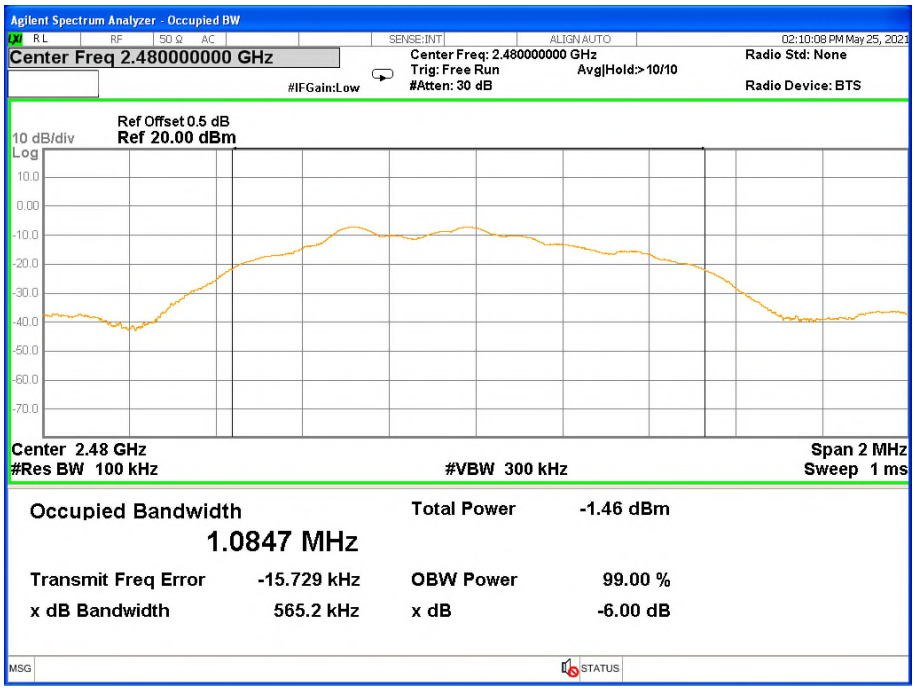
6dB Bandwidth–BLE 1M PHY-L Channel



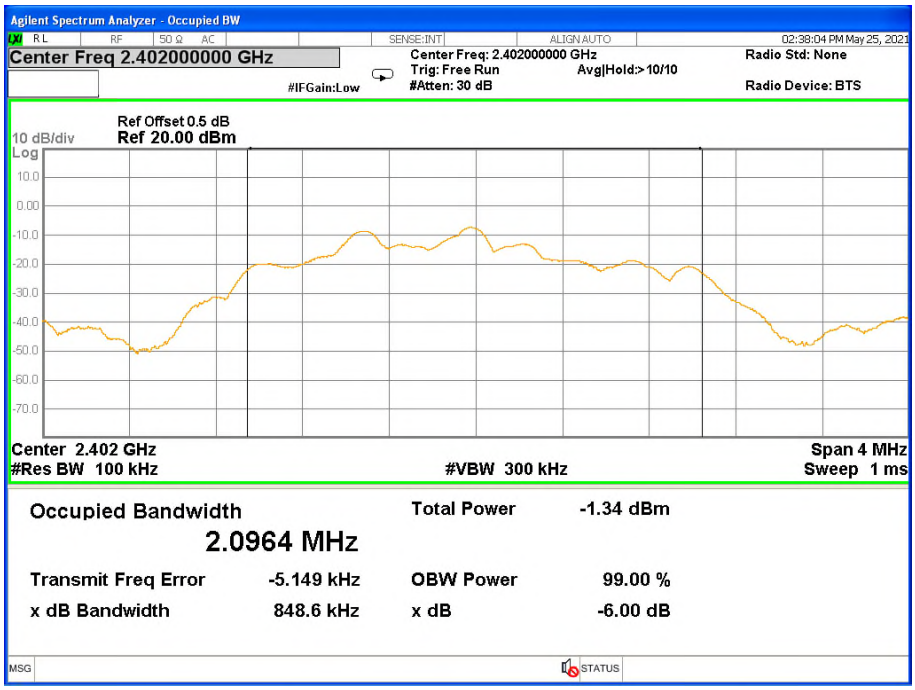
6dB Bandwidth–BLE 1M PHY-M Channel



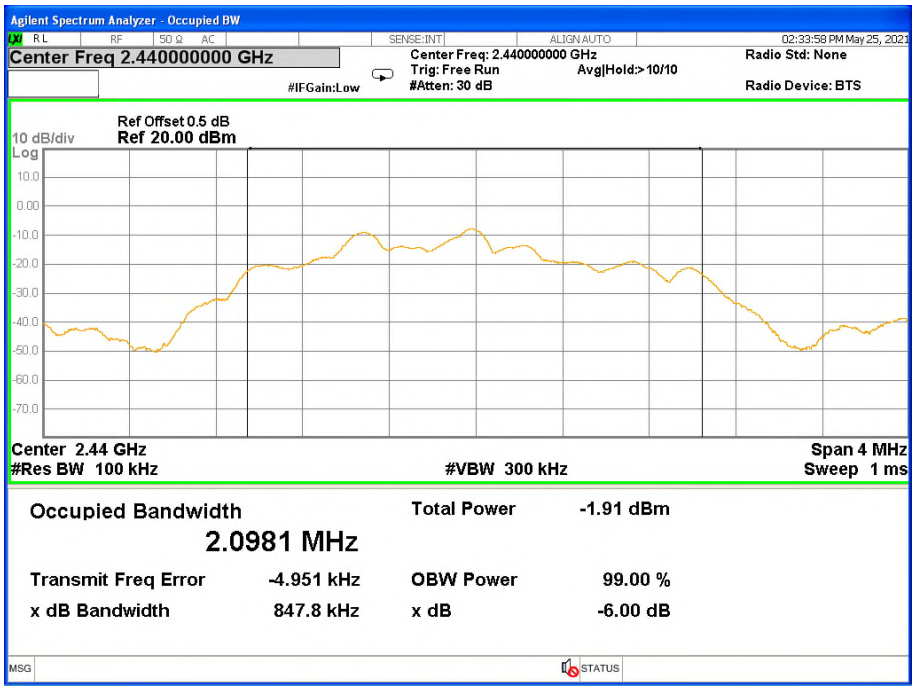
6dB Bandwidth–BLE 1M PHY-H Channel



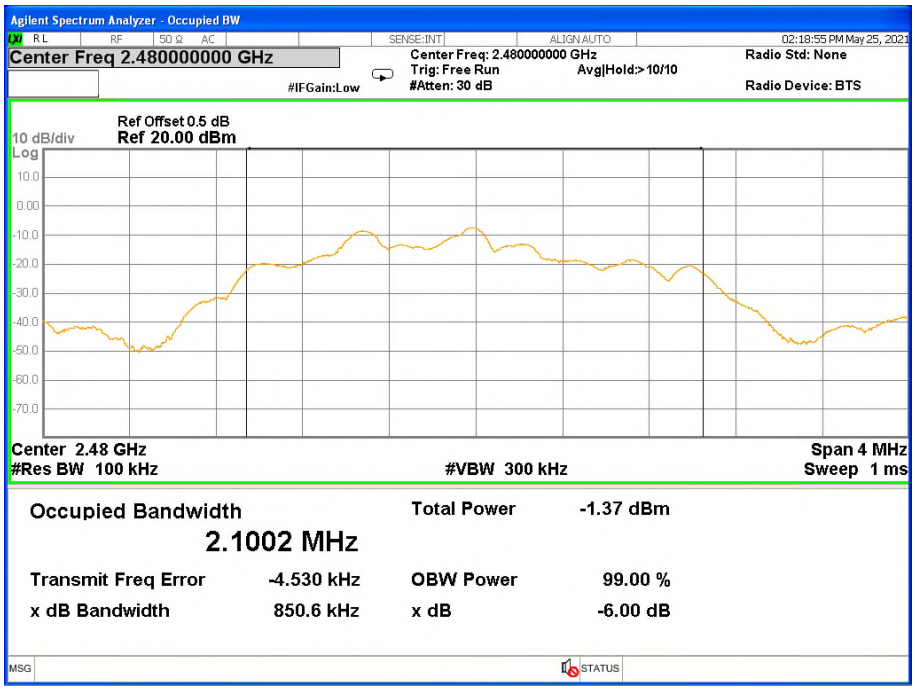
6dB Bandwidth–BLE 2M PHY-L Channel



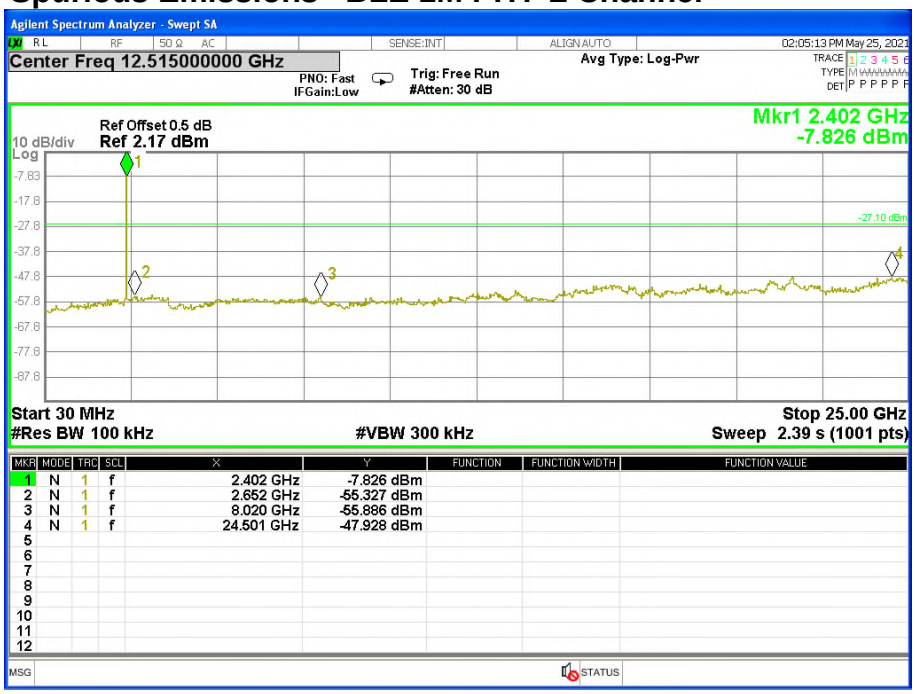
6dB Bandwidth–BLE 2M PHY-M Channel



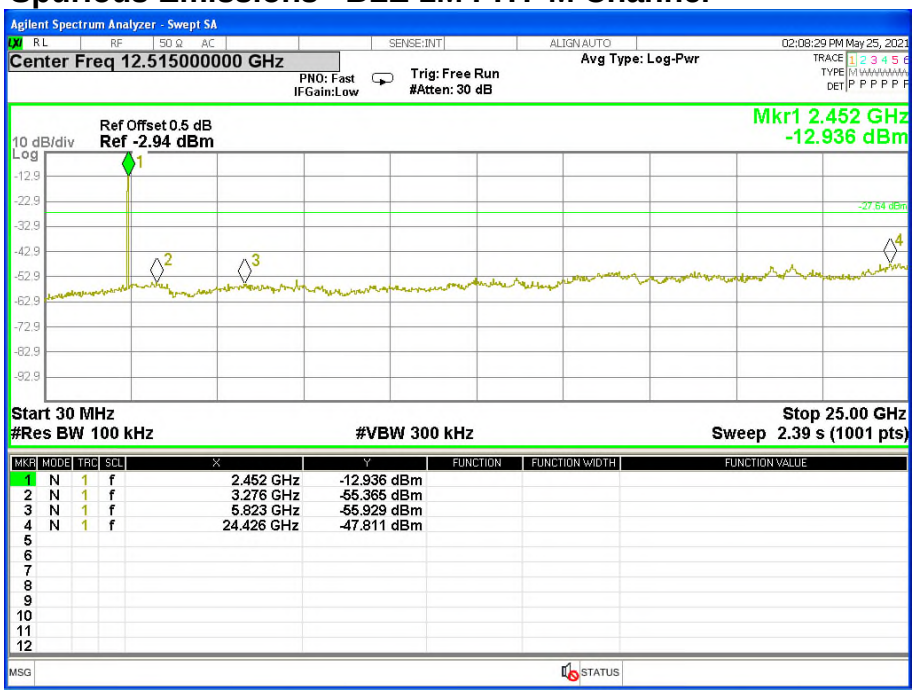
6dB Bandwidth–BLE 2M PHY-H Channel



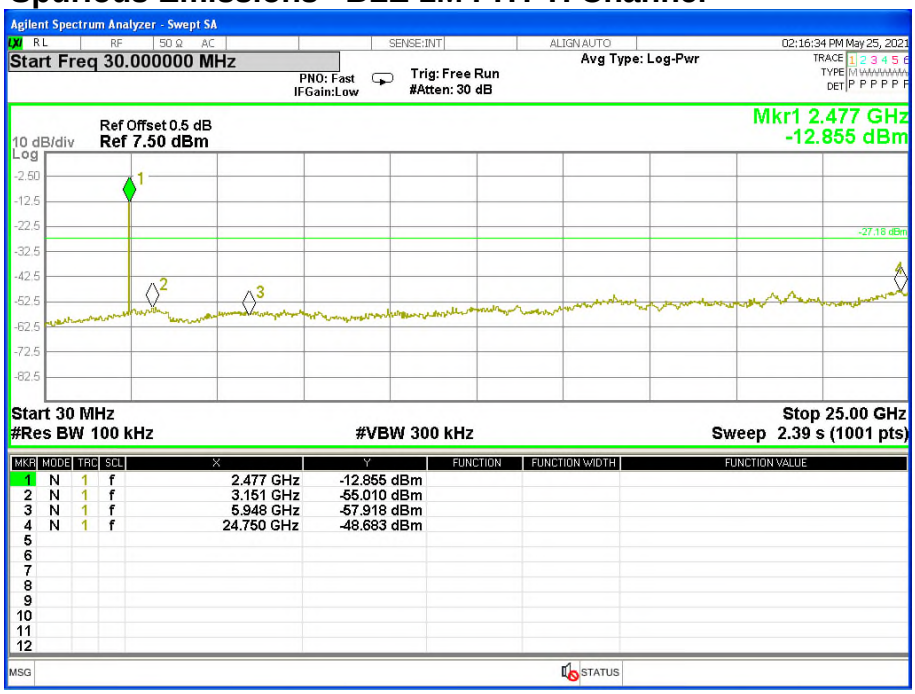
Conducted Spurious Emissions –BLE 1M PHY-L Channel



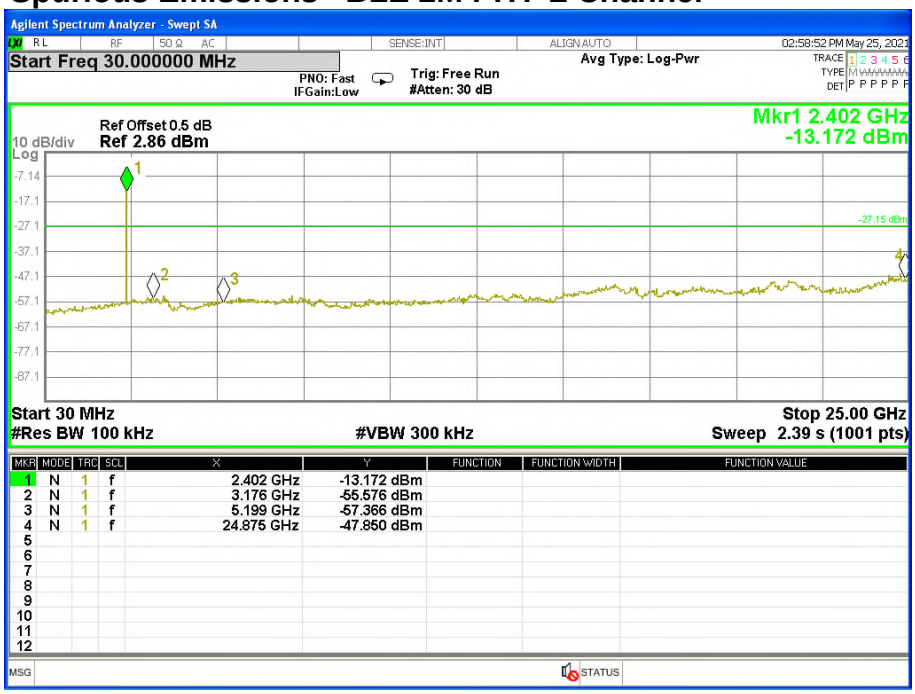
Conducted Spurious Emissions –BLE 1M PHY-M Channel



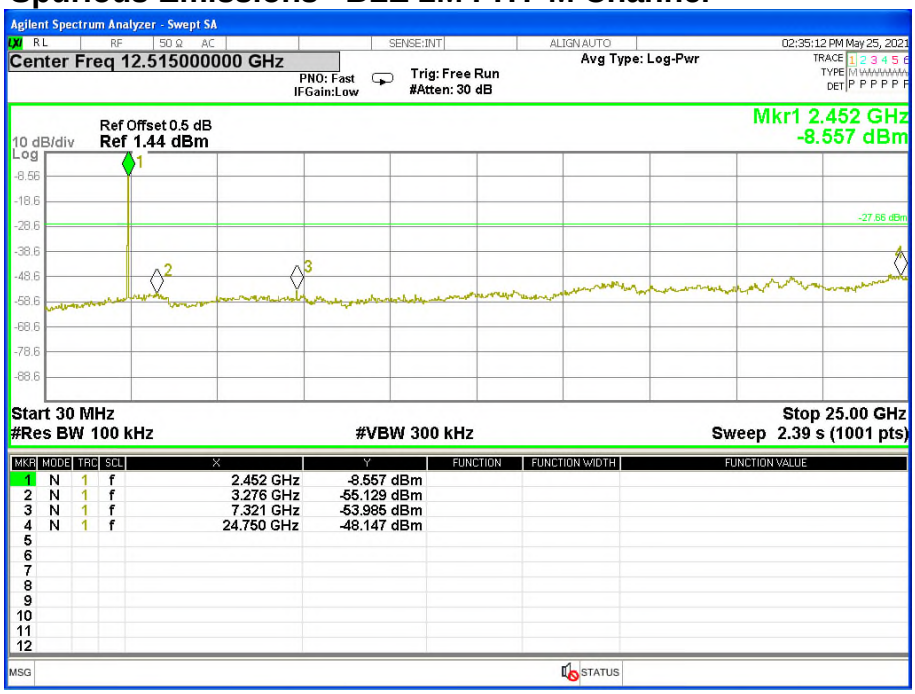
Conducted Spurious Emissions –BLE 1M PHY-H Channel



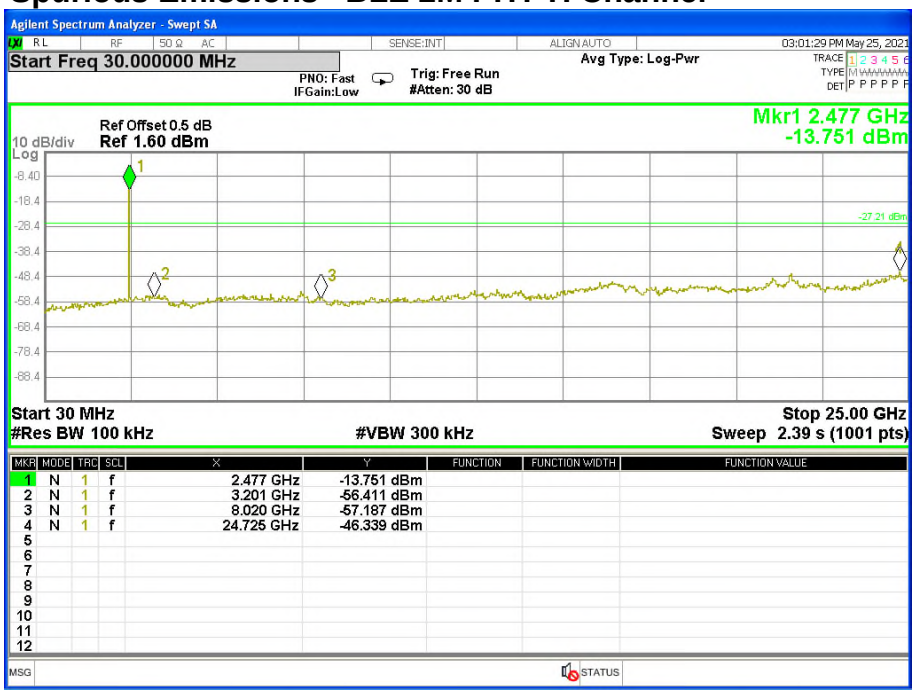
Conducted Spurious Emissions –BLE 2M PHY-L Channel



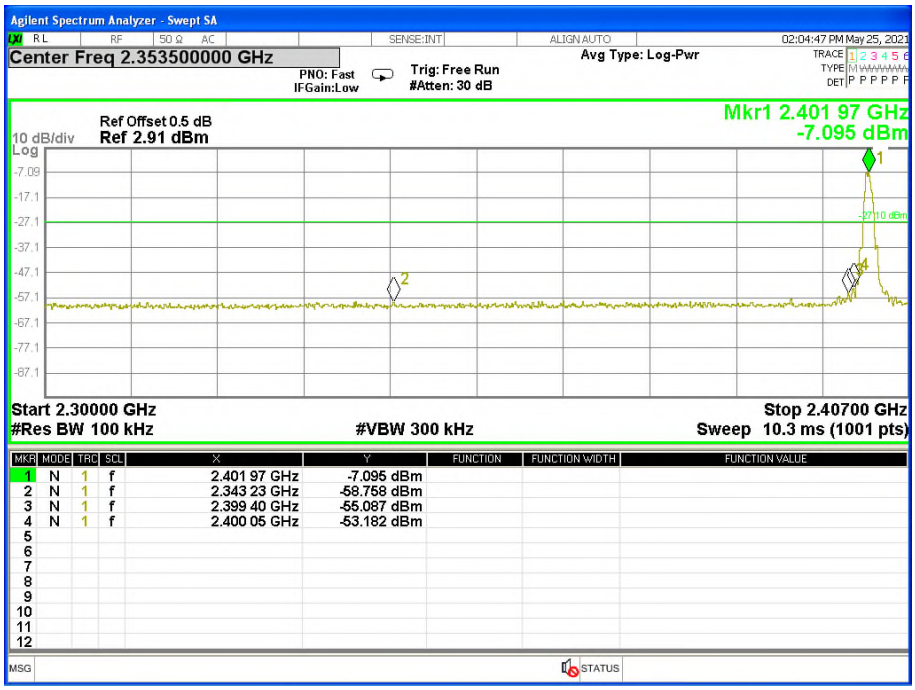
Conducted Spurious Emissions –BLE 2M PHY-M Channel



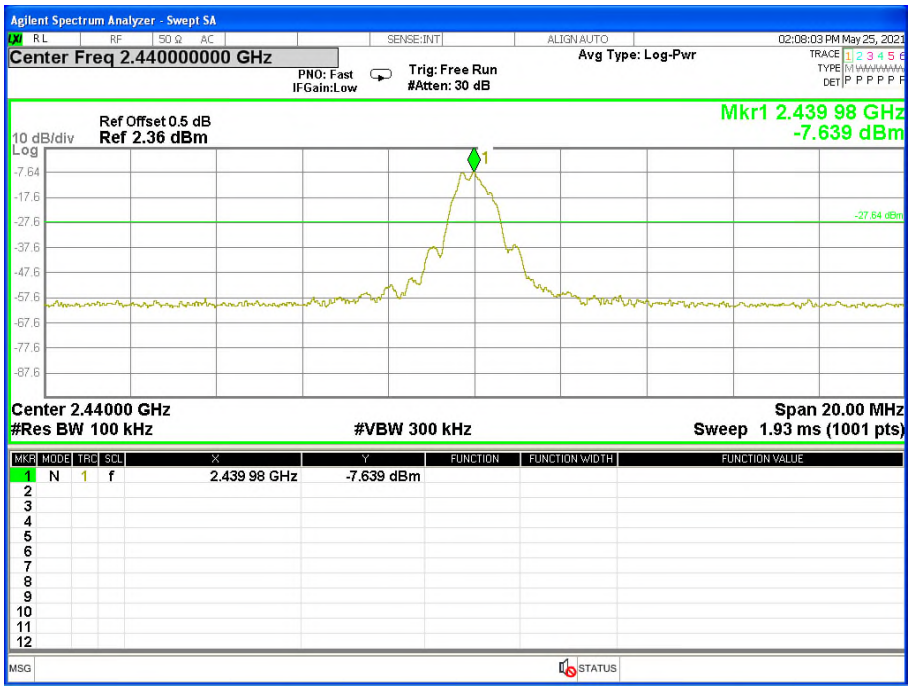
Conducted Spurious Emissions –BLE 2M PHY-H Channel



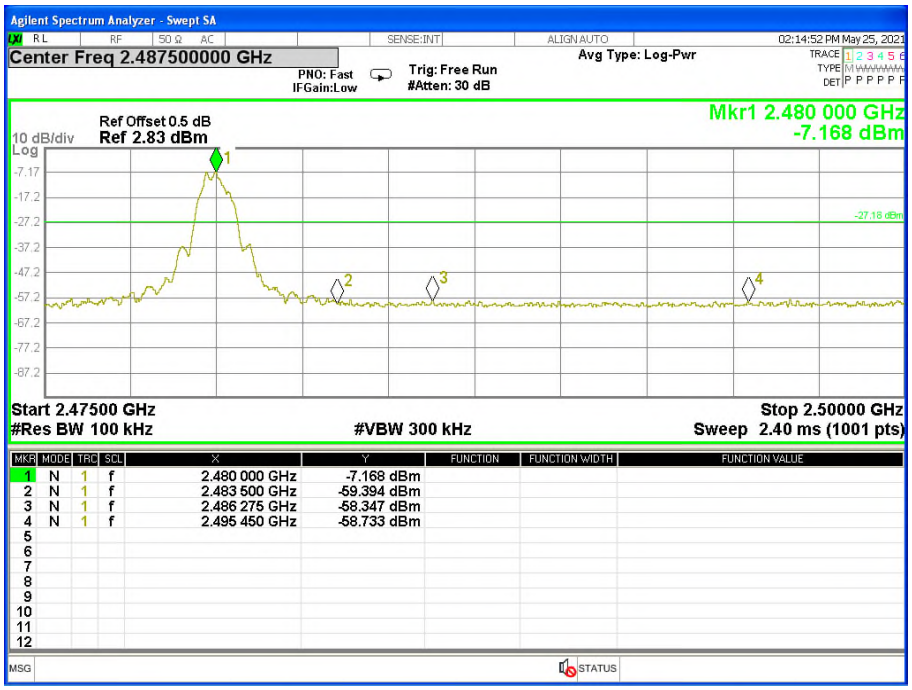
Band Edge- BLE 1M PHY-L CH



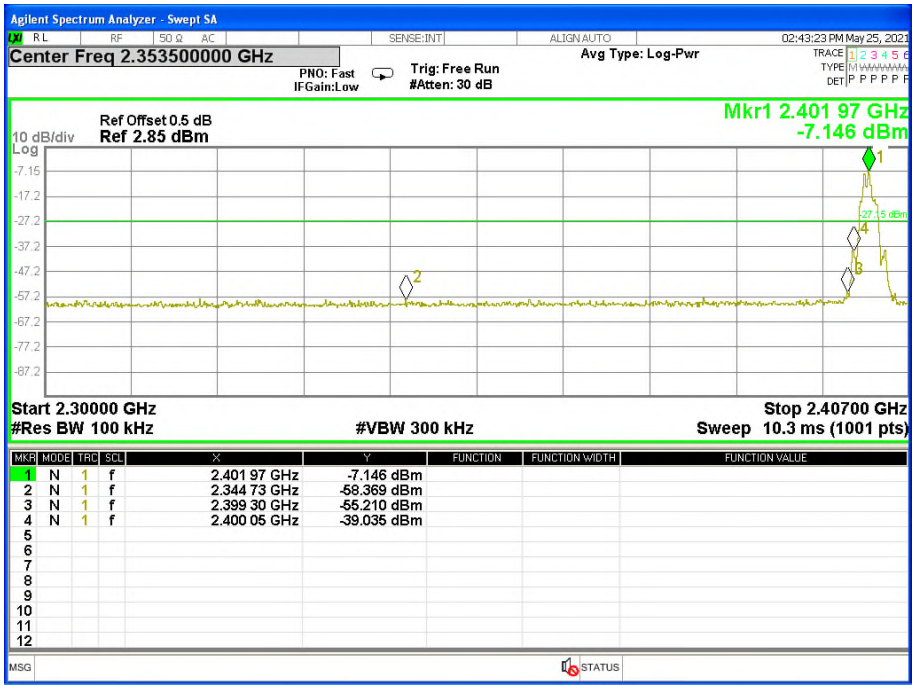
Band Edge- BLE 1M PHY-M CH



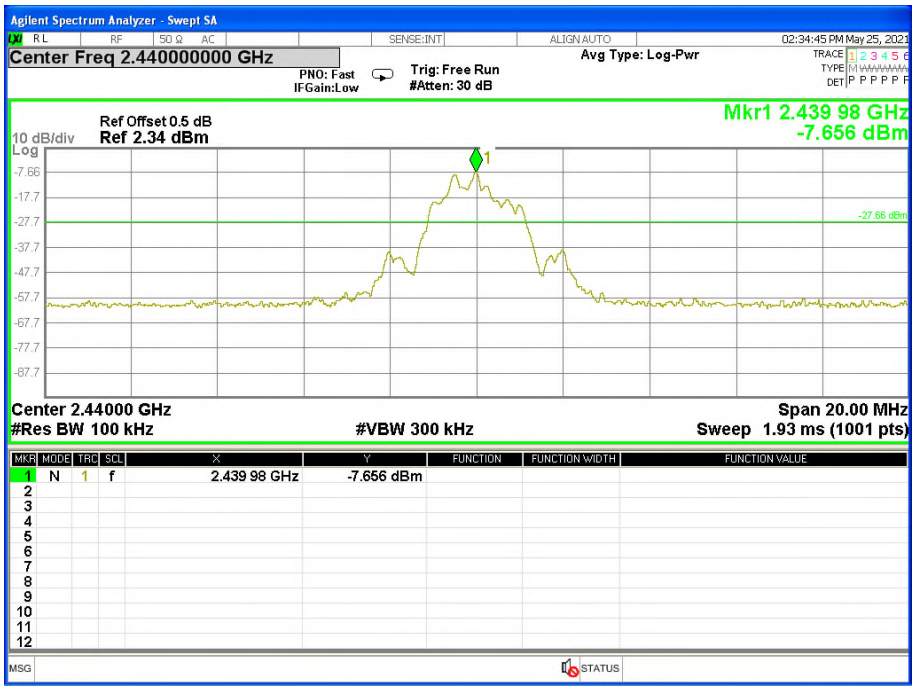
Band Edge- BLE 1M PHY-H CH



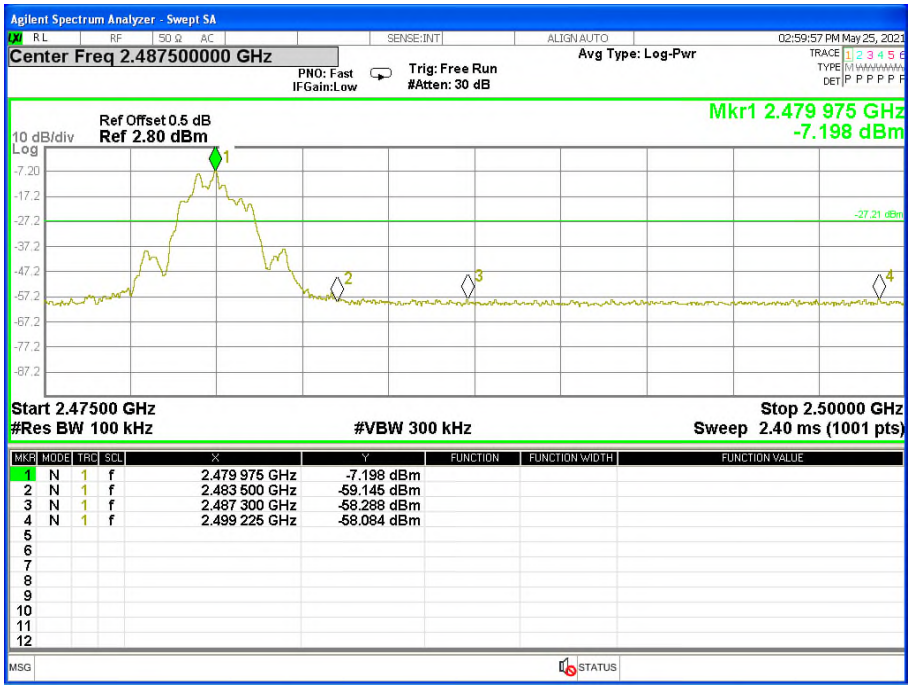
Band Edge- BLE 2M PHY-L CH



Band Edge- BLE 2M PHY-M CH

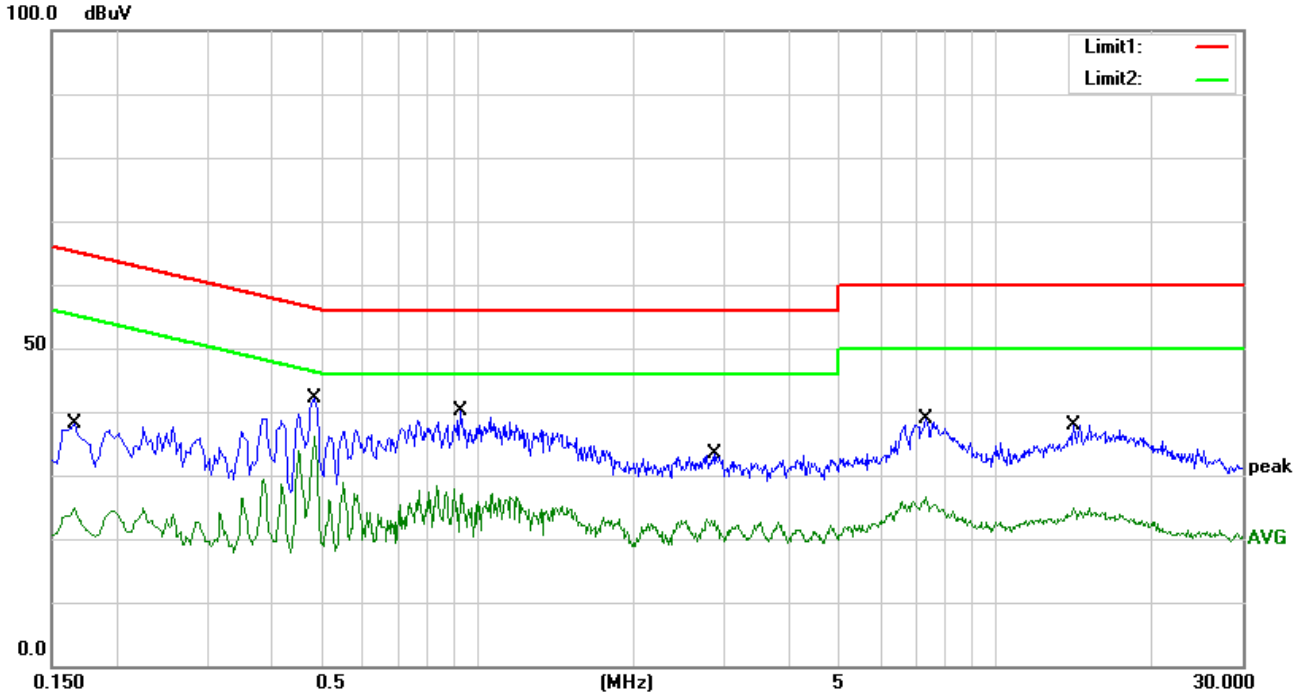


Band Edge- BLE 2M PHY-H CH



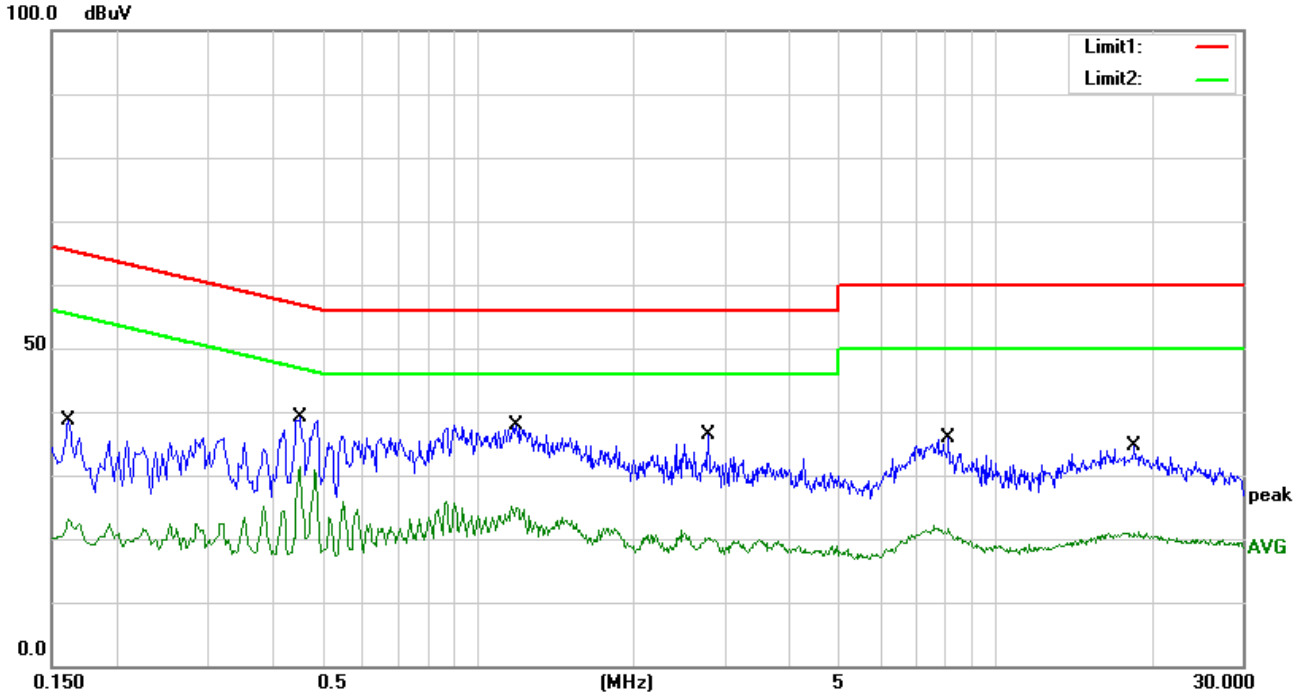
Conducted Emission

LINE L RESULTS



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1660	17.75	20.33	38.08	65.16	-27.08	QP
2	0.1660	4.45	20.33	24.78	55.16	-30.38	AVG
3	0.4820	21.62	20.54	42.16	56.30	-14.14	QP
4	0.4820	15.48	20.54	36.02	46.30	-10.28	AVG
5	0.9260	19.77	20.31	40.08	56.00	-15.92	QP
6	0.9260	6.69	20.31	27.00	46.00	-19.00	AVG
7	2.8740	12.96	20.35	33.31	56.00	-22.69	QP
8	2.8740	2.63	20.35	22.98	46.00	-23.02	AVG
9	7.3500	18.14	20.66	38.80	60.00	-21.20	QP
10	7.3500	5.89	20.66	26.55	50.00	-23.45	AVG
11	14.1380	16.34	21.64	37.98	60.00	-22.02	QP
12	14.1380	3.13	21.64	24.77	50.00	-25.23	AVG

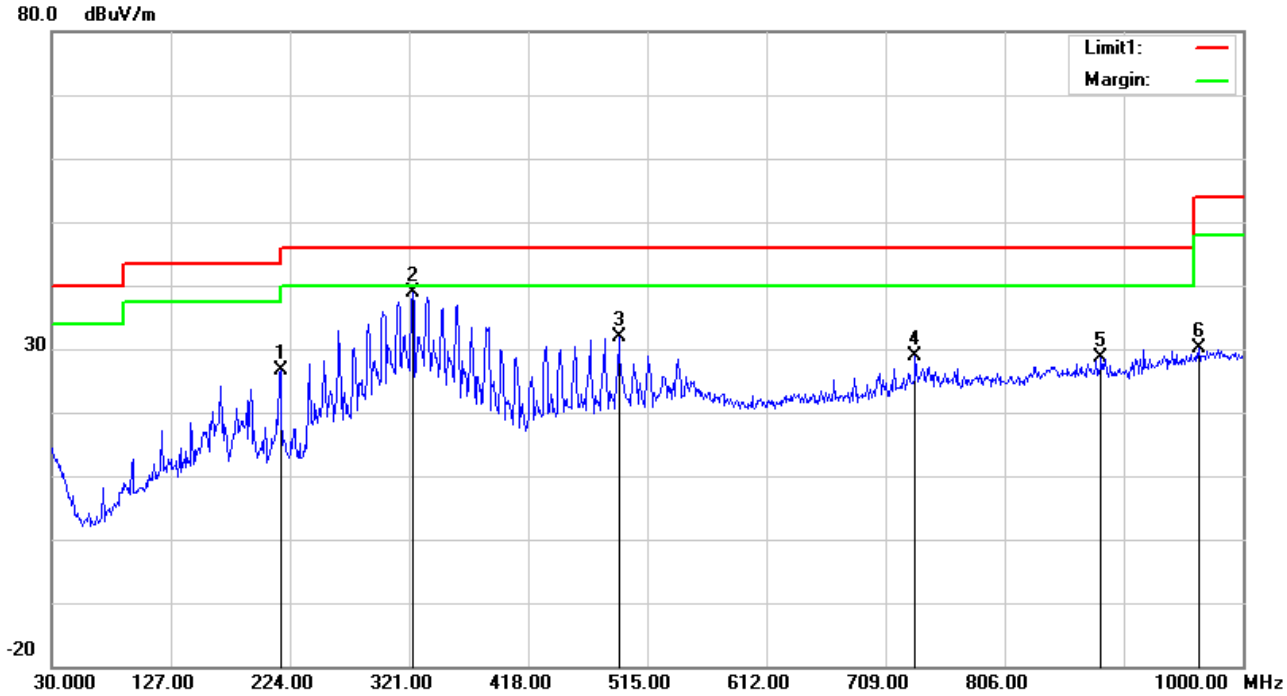
NEUTRAL N RESULTS



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	18.42	20.33	38.75	65.36	-26.61	QP
2	0.1620	2.69	20.33	23.02	55.36	-32.34	AVG
3	0.4540	18.66	20.54	39.20	56.80	-17.60	QP
4	0.4540	10.73	20.54	31.27	46.80	-15.53	AVG
5	1.1900	17.66	20.30	37.96	56.00	-18.04	QP
6	1.1900	4.51	20.30	24.81	46.00	-21.19	AVG
7	2.7860	15.99	20.34	36.33	56.00	-19.67	QP
8	2.7860	-0.24	20.34	20.10	46.00	-25.90	AVG
9	8.1140	14.96	20.82	35.78	60.00	-24.22	QP
10	8.1140	0.71	20.82	21.53	50.00	-28.47	AVG
11	18.6020	12.02	22.58	34.60	60.00	-25.40	QP
12	18.6020	-1.63	22.58	20.95	50.00	-29.05	AVG

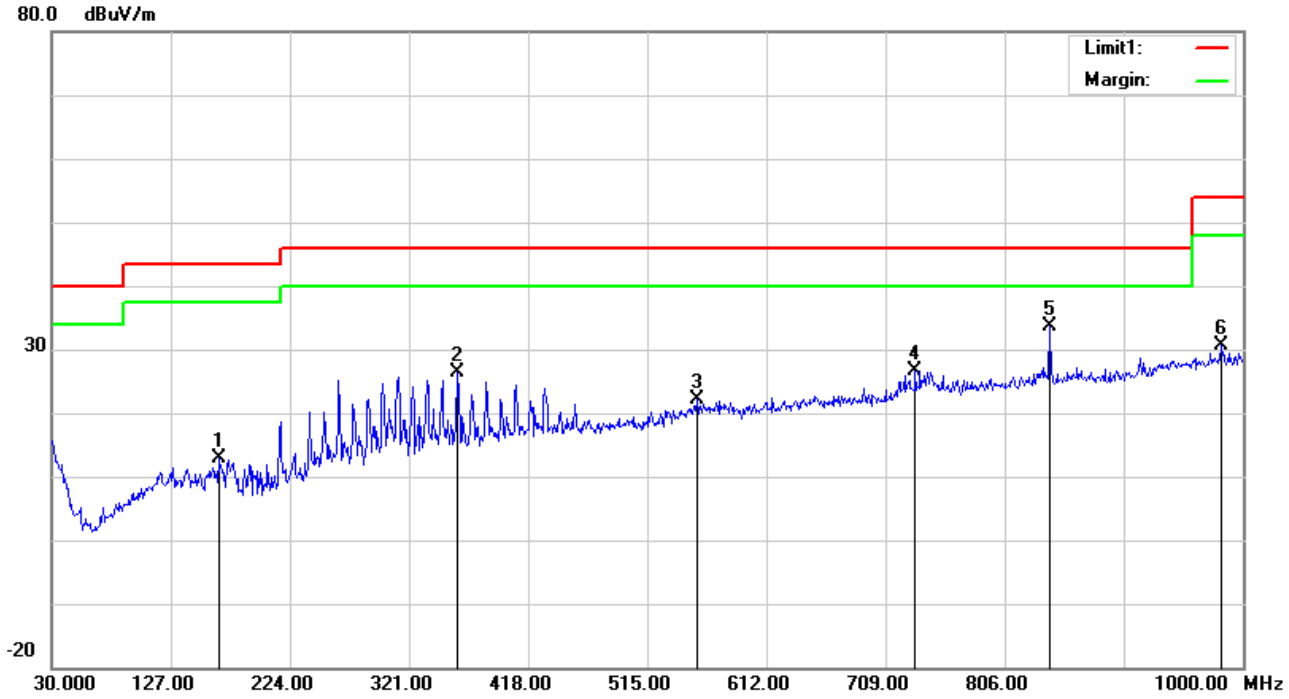
Radiateded Spurious Emissions (30MHz -1000MHz)
1M PHY

Job No.:	STS2105029	Ant.Polar.:	Horizontal
Model:	NET-50	Power:	DC 3.7V
Mode:	BLE 1M	Test By:	Chris



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	216.2400	46.64	-20.05	26.59	46.00	-19.41	QP
2	323.9100	52.74	-13.88	38.86	46.00	-7.14	QP
3	491.7200	40.16	-8.18	31.98	46.00	-14.02	QP
4	733.2500	31.15	-2.35	28.80	46.00	-17.20	QP
5	884.5700	29.41	-0.67	28.74	46.00	-17.26	QP
6	964.1100	28.15	1.86	30.01	54.00	-23.99	QP

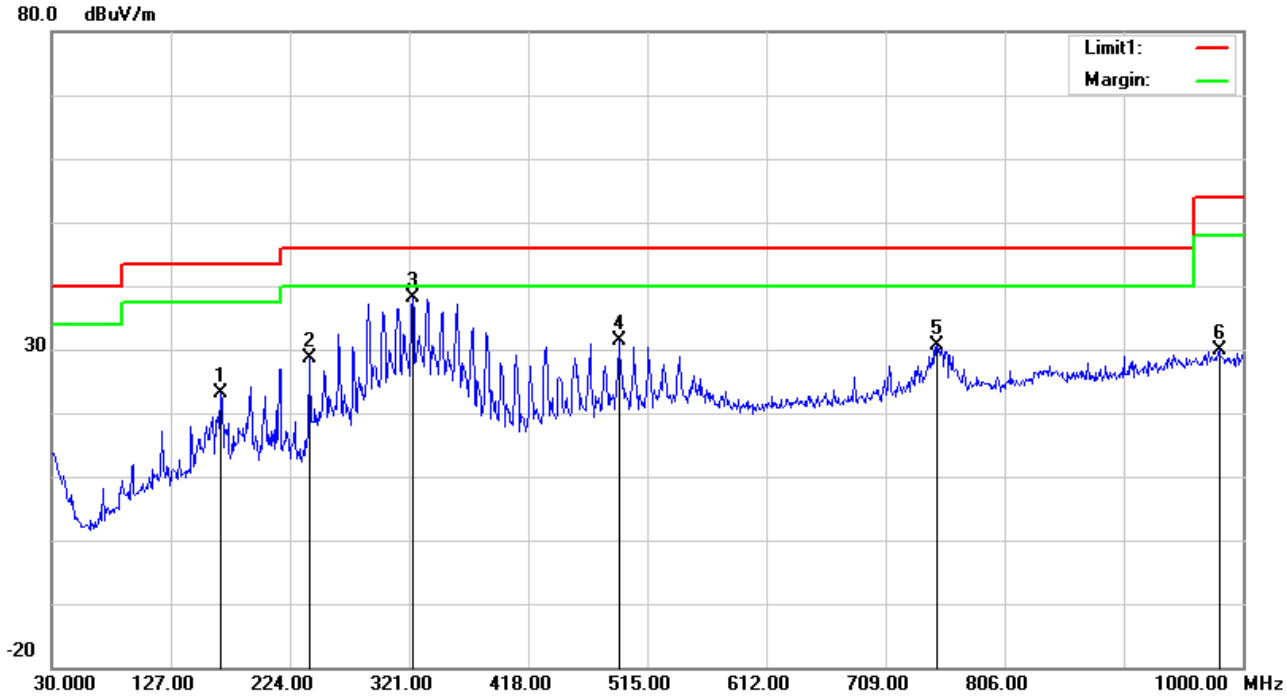
Job No.:	STS2105029	Ant.Polar.:	Vertical
Model:	NET-50	Power:	DC 3.7V
Mode:	BLE 1M	Test By:	Chris



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	165.8000	32.19	-19.40	12.79	43.50	-30.71	QP
2	359.8000	39.31	-12.87	26.44	46.00	-19.56	QP
3	555.7400	27.62	-5.60	22.02	46.00	-23.98	QP
4	733.2500	28.97	-2.35	26.62	46.00	-19.38	QP
5	842.8600	34.00	-0.46	33.54	46.00	-12.46	QP
6	982.5400	28.07	2.52	30.59	54.00	-23.41	QP

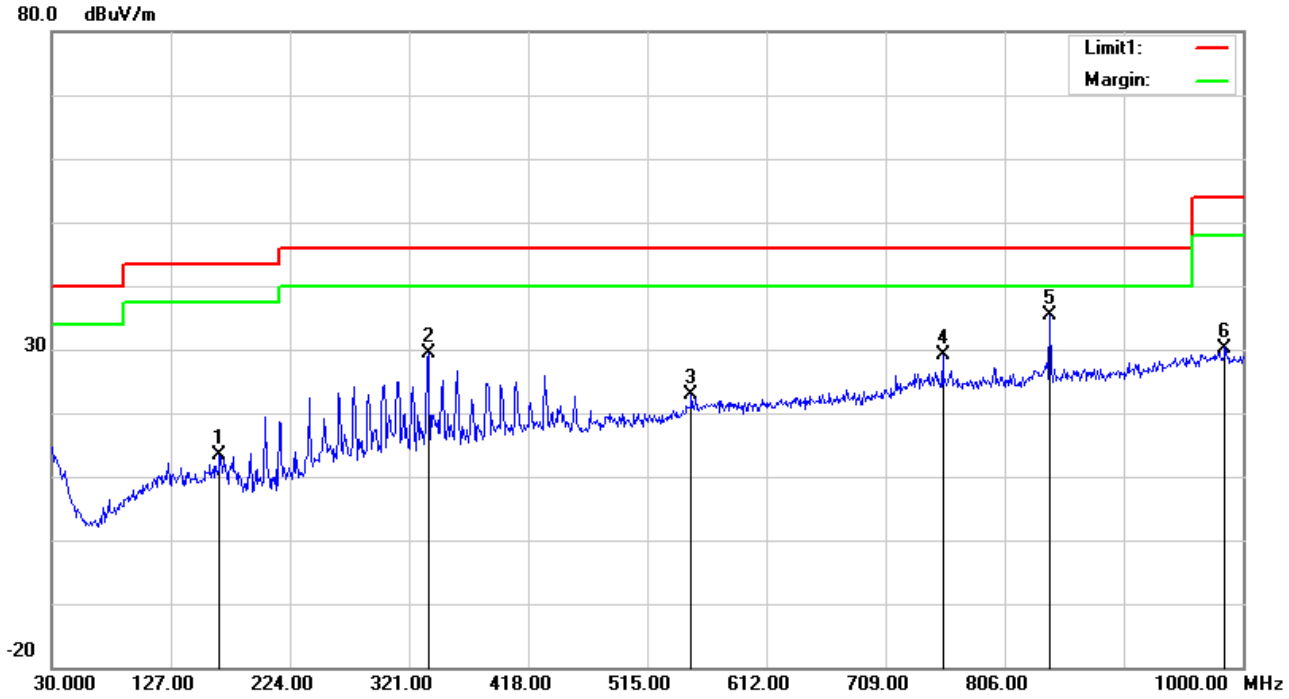
2M PHY

Job No.:	STS2105029	Ant.Polar.:	Horizontal
Model:	NET-50	Power:	DC 3.7V
Mode:	BLE 2M	Test By:	Chris



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	167.7400	42.66	-19.58	23.08	43.50	-20.42	QP
2	239.5200	46.67	-18.10	28.57	46.00	-17.43	QP
3	323.9100	52.07	-13.88	38.19	46.00	-7.81	QP
4	491.7200	39.44	-8.18	31.26	46.00	-14.74	QP
5	750.7100	32.85	-2.16	30.69	46.00	-15.31	QP
6	980.6000	27.14	2.63	29.77	54.00	-24.23	QP

Job No.:	STS2105029	Ant.Polar.:	Vertical
Model:	NET-50	Power:	DC 3.7V
Mode:	BLE 2M	Test By:	Chris



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	166.7700	32.83	-19.49	13.34	43.50	-30.16	QP
2	336.5200	42.98	-13.51	29.47	46.00	-16.53	QP
3	550.8900	28.68	-5.74	22.94	46.00	-23.06	QP
4	755.5600	31.36	-2.17	29.19	46.00	-16.81	QP
5	842.8600	35.78	-0.46	35.32	46.00	-10.68	QP
6	985.4500	27.92	2.33	30.25	54.00	-23.75	QP

Radiateded Spurious Emissions ABOVE 1G

1M PHY
GFSK

Frequency	Meter Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type	
Low Channel (GFSK/2402 MHz)										
3264.79	61.78	44.70	6.70	28.20	-9.80	51.98	74.00	-22.02	PK	Vertical
3264.79	51.35	44.70	6.70	28.20	-9.80	41.55	54.00	-12.45	AV	Vertical
3264.60	61.14	44.70	6.70	28.20	-9.80	51.34	74.00	-22.66	PK	Horizontal
3264.60	50.59	44.70	6.70	28.20	-9.80	40.79	54.00	-13.21	AV	Horizontal
4804.48	59.07	44.20	9.04	31.60	-3.56	55.51	74.00	-18.49	PK	Vertical
4804.48	49.18	44.20	9.04	31.60	-3.56	45.62	54.00	-8.38	AV	Vertical
4804.51	58.77	44.20	9.04	31.60	-3.56	55.21	74.00	-18.79	PK	Horizontal
4804.51	50.36	44.20	9.04	31.60	-3.56	46.80	54.00	-7.20	AV	Horizontal
5359.81	48.34	44.20	9.86	32.00	-2.34	46.00	74.00	-28.00	PK	Vertical
5359.81	40.16	44.20	9.86	32.00	-2.34	37.82	54.00	-16.18	AV	Vertical
5359.83	47.79	44.20	9.86	32.00	-2.34	45.45	74.00	-28.55	PK	Horizontal
5359.83	38.31	44.20	9.86	32.00	-2.34	35.96	54.00	-18.04	AV	Horizontal
7205.88	53.67	43.50	11.40	35.50	3.40	57.07	74.00	-16.93	PK	Vertical
7205.88	44.85	43.50	11.40	35.50	3.40	48.25	54.00	-5.75	AV	Vertical
7205.70	54.71	43.50	11.40	35.50	3.40	58.11	74.00	-15.89	PK	Horizontal
7205.70	44.09	43.50	11.40	35.50	3.40	47.49	54.00	-6.51	AV	Horizontal
Middle Channel (GFSK/2440 MHz)										
3263.21	60.94	44.70	6.70	28.20	-9.80	51.14	74.00	-22.86	PK	Vertical
3263.21	51.17	44.70	6.70	28.20	-9.80	41.37	54.00	-12.63	AV	Vertical
3263.20	61.18	44.70	6.70	28.20	-9.80	51.38	74.00	-22.62	PK	Horizontal
3263.20	50.55	44.70	6.70	28.20	-9.80	40.75	54.00	-13.25	AV	Horizontal
4879.92	59.11	44.20	9.04	31.60	-3.56	55.55	74.00	-18.45	PK	Vertical
4879.92	49.23	44.20	9.04	31.60	-3.56	45.67	54.00	-8.33	AV	Vertical
4879.91	59.21	44.20	9.04	31.60	-3.56	55.65	74.00	-18.35	PK	Horizontal
4879.91	50.37	44.20	9.04	31.60	-3.56	46.81	54.00	-7.19	AV	Horizontal
5357.10	48.77	44.20	9.86	32.00	-2.34	46.43	74.00	-27.57	PK	Vertical
5357.10	40.35	44.20	9.86	32.00	-2.34	38.01	54.00	-15.99	AV	Vertical
5357.39	48.23	44.20	9.86	32.00	-2.34	45.88	74.00	-28.12	PK	Horizontal
5357.13	38.57	44.20	9.86	32.00	-2.34	36.23	54.00	-17.77	AV	Horizontal
7320.85	53.98	43.50	11.40	35.50	3.40	57.38	74.00	-16.62	PK	Vertical
7320.85	43.73	43.50	11.40	35.50	3.40	47.13	54.00	-6.87	AV	Vertical
7320.34	53.50	43.50	11.40	35.50	3.40	56.90	74.00	-17.10	PK	Horizontal
7320.34	44.20	43.50	11.40	35.50	3.40	47.60	54.00	-6.40	AV	Horizontal

High Channel (GFSK/2480 MHz)										
3264.85	61.17	44.70	6.70	28.20	-9.80	51.37	74.00	-22.63	PK	Vertical
3264.85	50.40	44.70	6.70	28.20	-9.80	40.60	54.00	-13.40	AV	Vertical
3264.78	61.51	44.70	6.70	28.20	-9.80	51.71	74.00	-22.29	PK	Horizontal
3264.78	50.10	44.70	6.70	28.20	-9.80	40.30	54.00	-13.70	AV	Horizontal
4960.33	58.69	44.20	9.04	31.60	-3.56	55.13	74.00	-18.87	PK	Vertical
4960.33	50.52	44.20	9.04	31.60	-3.56	46.96	54.00	-7.04	AV	Vertical
4960.49	58.41	44.20	9.04	31.60	-3.56	54.85	74.00	-19.15	PK	Horizontal
4960.49	49.81	44.20	9.04	31.60	-3.56	46.25	54.00	-7.75	AV	Horizontal
5359.71	48.90	44.20	9.86	32.00	-2.34	46.56	74.00	-27.44	PK	Vertical
5359.71	39.20	44.20	9.86	32.00	-2.34	36.85	54.00	-17.15	AV	Vertical
5359.58	47.22	44.20	9.86	32.00	-2.34	44.87	74.00	-29.13	PK	Horizontal
5359.58	39.10	44.20	9.86	32.00	-2.34	36.75	54.00	-17.25	AV	Horizontal
7439.87	54.62	43.50	11.40	35.50	3.40	58.02	74.00	-15.98	PK	Vertical
7439.87	43.76	43.50	11.40	35.50	3.40	47.16	54.00	-6.84	AV	Vertical
7439.83	54.85	43.50	11.40	35.50	3.40	58.25	74.00	-15.75	PK	Horizontal
7439.83	43.85	43.50	11.40	35.50	3.40	47.25	54.00	-6.75	AV	Horizontal

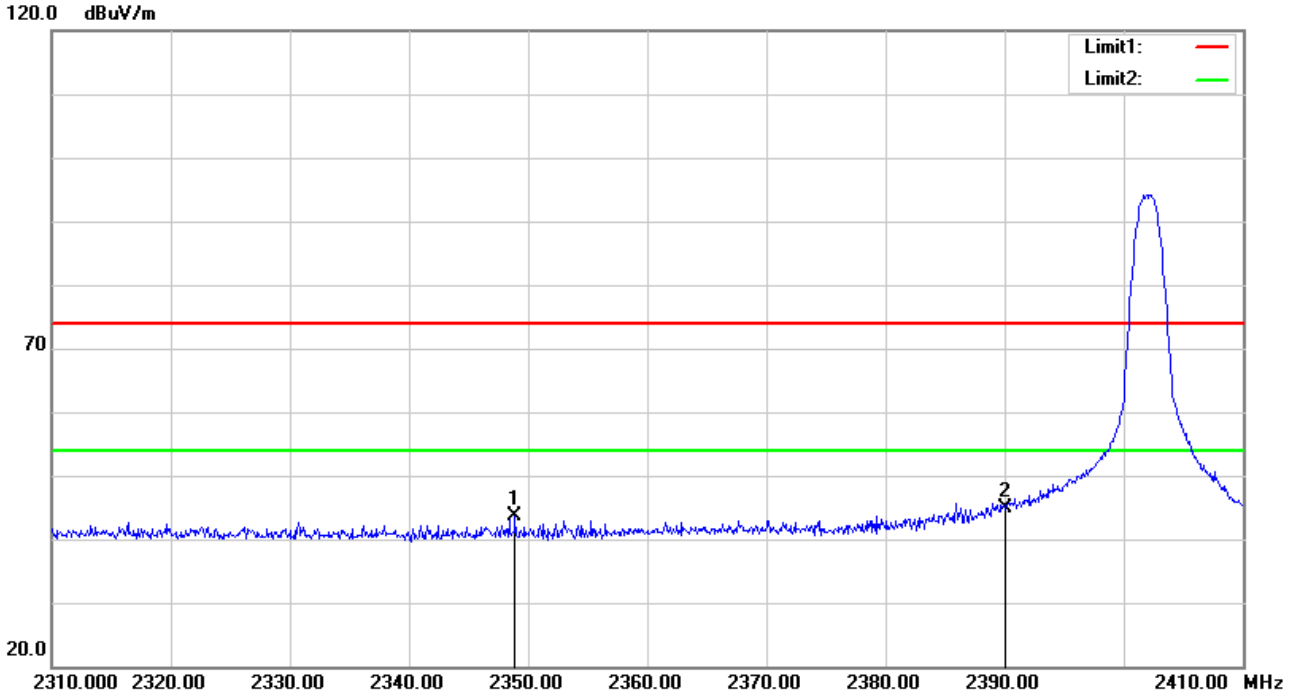
2M PHY
GFSK

Frequency	Meter Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type	
Low Channel (GFSK/2402 MHz)										
3264.89	62.02	44.70	6.70	28.20	-9.80	52.22	74.00	-21.78	PK	Vertical
3264.89	51.56	44.70	6.70	28.20	-9.80	41.76	54.00	-12.24	AV	Vertical
3264.83	61.04	44.70	6.70	28.20	-9.80	51.24	74.00	-22.76	PK	Horizontal
3264.83	49.94	44.70	6.70	28.20	-9.80	40.14	54.00	-13.86	AV	Horizontal
4804.54	59.30	44.20	9.04	31.60	-3.56	55.74	74.00	-18.26	PK	Vertical
4804.54	50.12	44.20	9.04	31.60	-3.56	46.56	54.00	-7.44	AV	Vertical
4804.40	58.16	44.20	9.04	31.60	-3.56	54.60	74.00	-19.40	PK	Horizontal
4804.40	49.37	44.20	9.04	31.60	-3.56	45.81	54.00	-8.19	AV	Horizontal
5359.63	49.16	44.20	9.86	32.00	-2.34	46.81	74.00	-27.19	PK	Vertical
5359.63	39.74	44.20	9.86	32.00	-2.34	37.40	54.00	-16.60	AV	Vertical
5359.62	47.93	44.20	9.86	32.00	-2.34	45.59	74.00	-28.41	PK	Horizontal
5359.62	38.07	44.20	9.86	32.00	-2.34	35.73	54.00	-18.27	AV	Horizontal
7205.84	53.62	43.50	11.40	35.50	3.40	57.02	74.00	-16.98	PK	Vertical
7205.84	44.27	43.50	11.40	35.50	3.40	47.67	54.00	-6.33	AV	Vertical
7205.90	54.43	43.50	11.40	35.50	3.40	57.83	74.00	-16.17	PK	Horizontal
7205.90	43.81	43.50	11.40	35.50	3.40	47.21	54.00	-6.79	AV	Horizontal
Middle Channel (GFSK/2440 MHz)										
3263.09	61.84	44.70	6.70	28.20	-9.80	52.04	74.00	-21.96	PK	Vertical
3263.09	50.65	44.70	6.70	28.20	-9.80	40.85	54.00	-13.15	AV	Vertical
3263.19	62.20	44.70	6.70	28.20	-9.80	52.40	74.00	-21.60	PK	Horizontal
3263.19	50.74	44.70	6.70	28.20	-9.80	40.94	54.00	-13.06	AV	Horizontal
4879.87	59.52	44.20	9.04	31.60	-3.56	55.96	74.00	-18.04	PK	Vertical
4879.87	50.06	44.20	9.04	31.60	-3.56	46.50	54.00	-7.50	AV	Vertical
4880.12	58.55	44.20	9.04	31.60	-3.56	54.99	74.00	-19.01	PK	Horizontal
4880.12	50.43	44.20	9.04	31.60	-3.56	46.87	54.00	-7.13	AV	Horizontal
5357.16	49.24	44.20	9.86	32.00	-2.34	46.90	74.00	-27.10	PK	Vertical
5357.16	40.40	44.20	9.86	32.00	-2.34	38.06	54.00	-15.94	AV	Vertical
5357.39	48.23	44.20	9.86	32.00	-2.34	45.89	74.00	-28.11	PK	Horizontal
5357.10	39.10	44.20	9.86	32.00	-2.34	36.75	54.00	-17.25	AV	Horizontal
7320.85	54.43	43.50	11.40	35.50	3.40	57.83	74.00	-16.17	PK	Vertical
7320.85	44.03	43.50	11.40	35.50	3.40	47.43	54.00	-6.57	AV	Vertical
7320.45	54.24	43.50	11.40	35.50	3.40	57.64	74.00	-16.36	PK	Horizontal
7320.45	43.79	43.50	11.40	35.50	3.40	47.19	54.00	-6.81	AV	Horizontal

High Channel (GFSK/2480 MHz)										
3264.82	61.32	44.70	6.70	28.20	-9.80	51.52	74.00	-22.48	PK	Vertical
3264.82	50.60	44.70	6.70	28.20	-9.80	40.80	54.00	-13.20	AV	Vertical
3264.73	60.90	44.70	6.70	28.20	-9.80	51.10	74.00	-22.90	PK	Horizontal
3264.73	50.50	44.70	6.70	28.20	-9.80	40.70	54.00	-13.30	AV	Horizontal
4960.44	58.40	44.20	9.04	31.60	-3.56	54.84	74.00	-19.16	PK	Vertical
4960.44	49.85	44.20	9.04	31.60	-3.56	46.29	54.00	-7.71	AV	Vertical
4960.57	58.58	44.20	9.04	31.60	-3.56	55.02	74.00	-18.98	PK	Horizontal
4960.57	49.92	44.20	9.04	31.60	-3.56	46.36	54.00	-7.64	AV	Horizontal
5359.72	49.01	44.20	9.86	32.00	-2.34	46.67	74.00	-27.33	PK	Vertical
5359.72	40.26	44.20	9.86	32.00	-2.34	37.91	54.00	-16.09	AV	Vertical
5359.84	47.11	44.20	9.86	32.00	-2.34	44.76	74.00	-29.24	PK	Horizontal
5359.84	38.79	44.20	9.86	32.00	-2.34	36.44	54.00	-17.56	AV	Horizontal
7439.80	54.15	43.50	11.40	35.50	3.40	57.55	74.00	-16.45	PK	Vertical
7439.80	44.79	43.50	11.40	35.50	3.40	48.19	54.00	-5.81	AV	Vertical
7439.71	53.67	43.50	11.40	35.50	3.40	57.07	74.00	-16.93	PK	Horizontal
7439.71	44.05	43.50	11.40	35.50	3.40	47.45	54.00	-6.55	AV	Horizontal

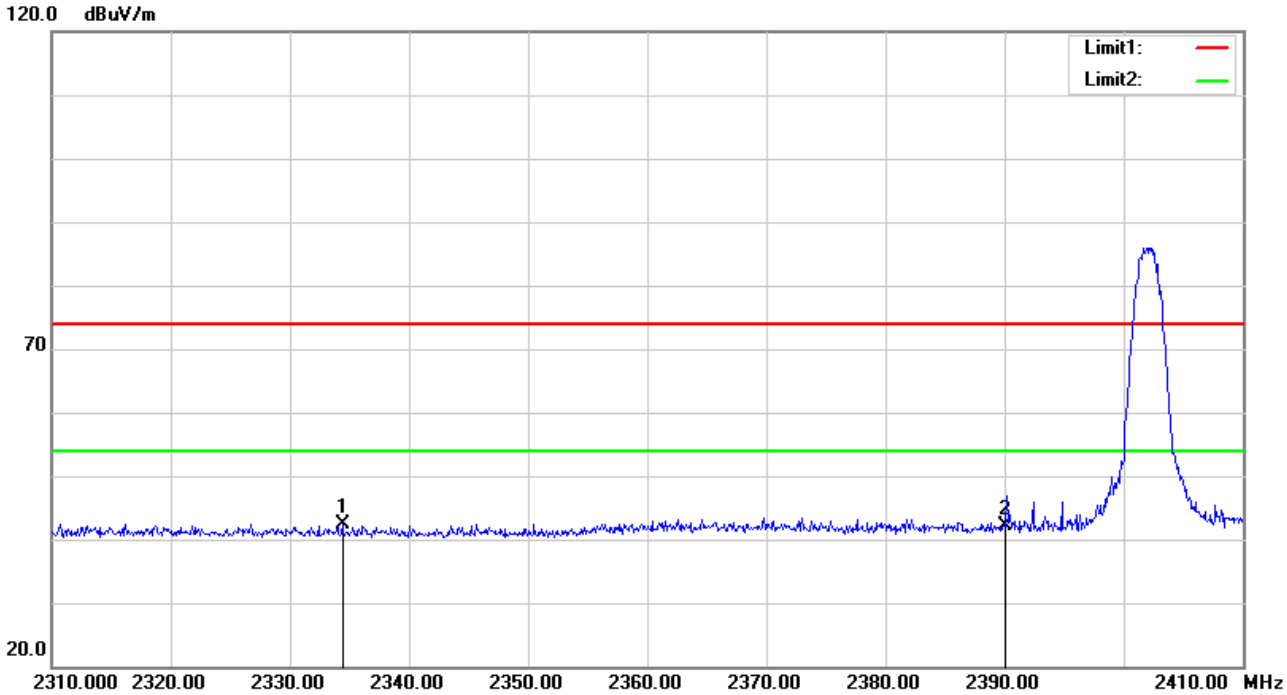
Band Edge- BLE

1M PHY
GFSK
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



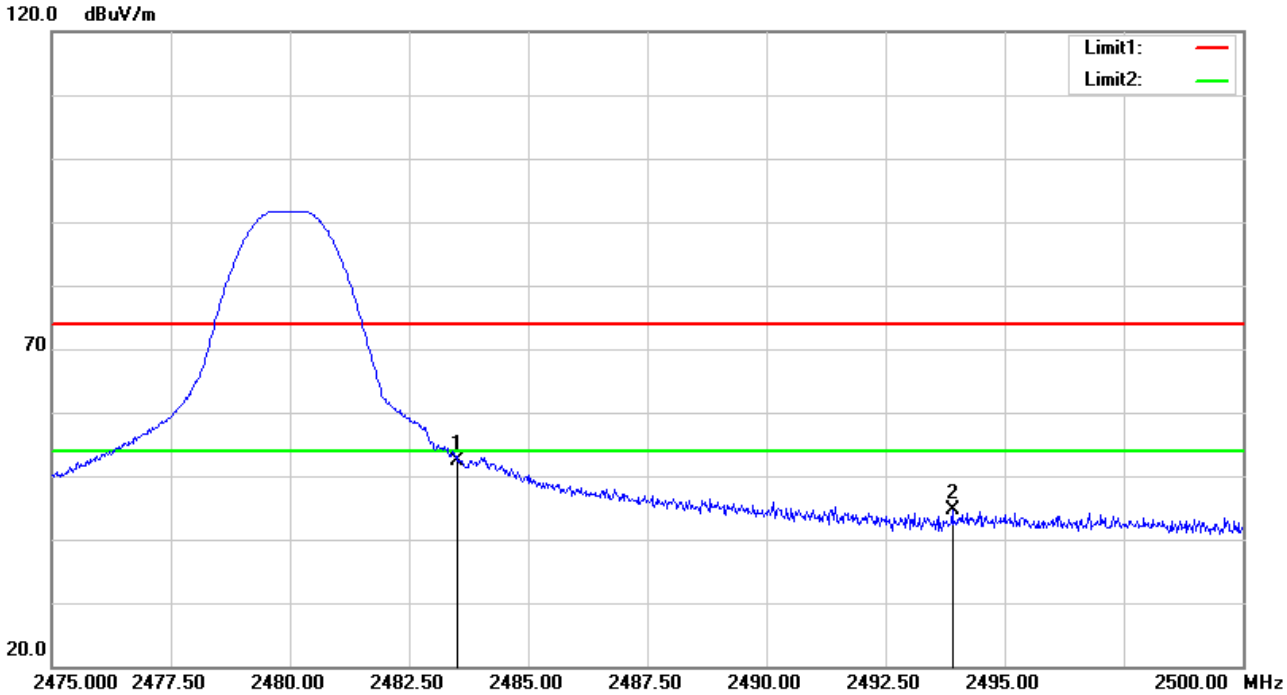
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2348.900	39.81	3.74	43.55	74.00	-30.45	peak
2	2390.000	40.57	4.34	44.91	74.00	-29.09	peak

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



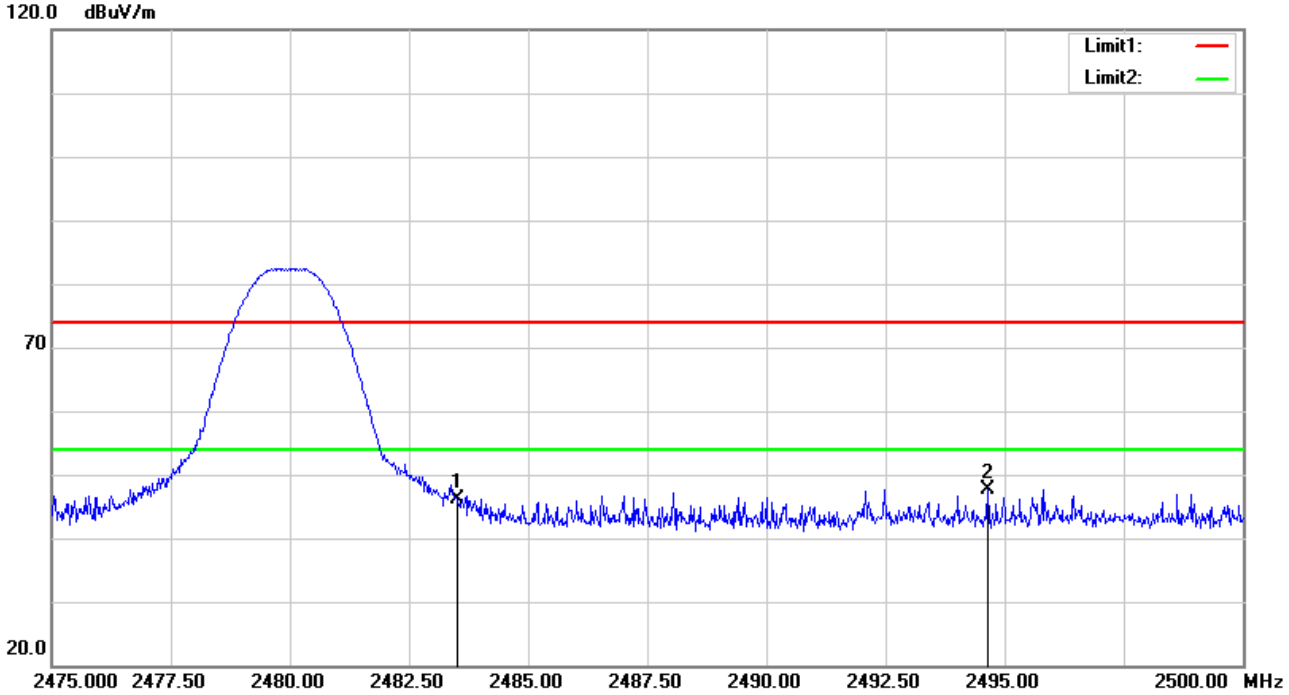
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2334.400	38.74	3.66	42.40	74.00	-31.60	peak
2	2390.000	37.83	4.34	42.17	74.00	-31.83	peak

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



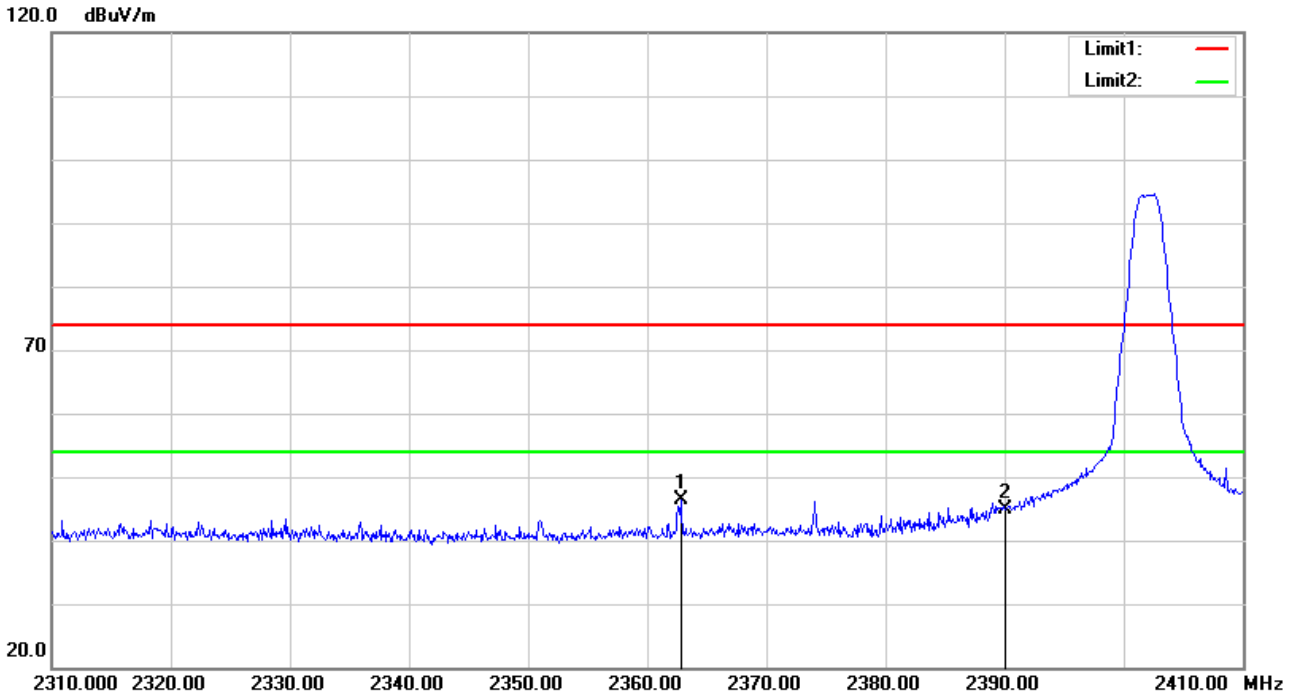
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	47.72	4.60	52.32	74.00	-21.68	peak
2	2493.900	40.11	4.63	44.74	74.00	-29.26	peak

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



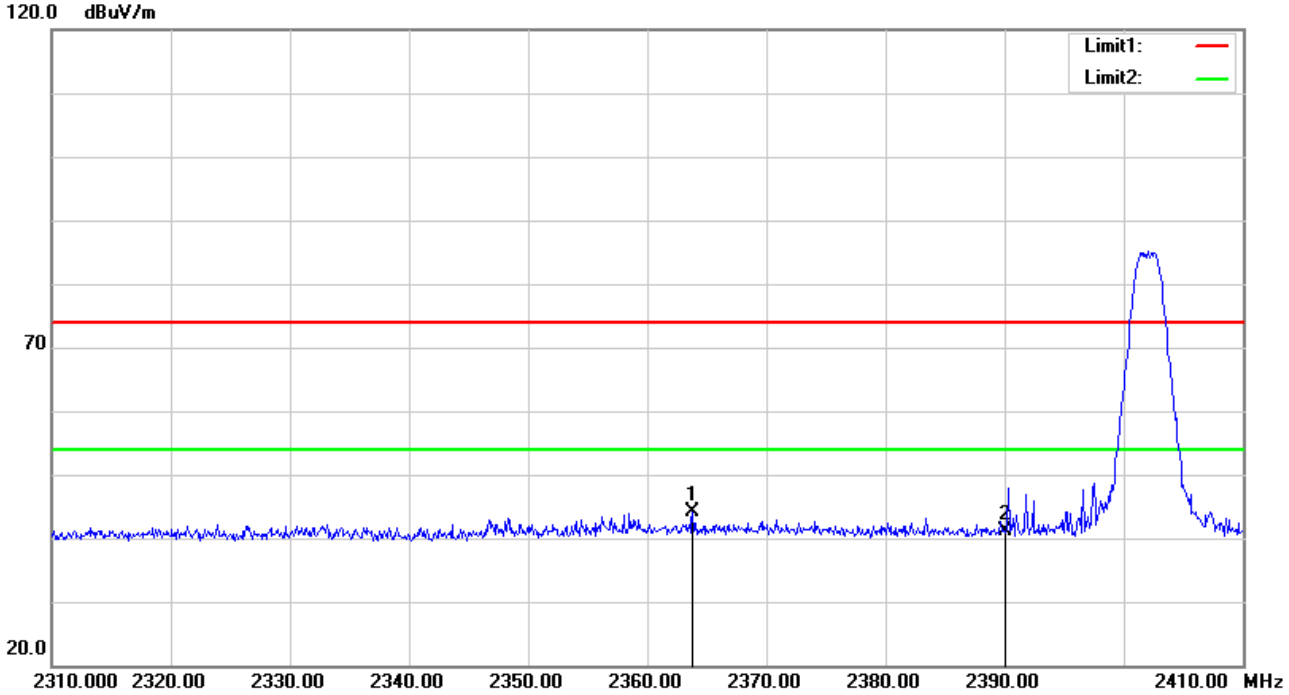
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	41.48	4.60	46.08	74.00	-27.92	peak
2	2494.650	43.09	4.63	47.72	74.00	-26.28	peak

2M PHY
GFSK
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



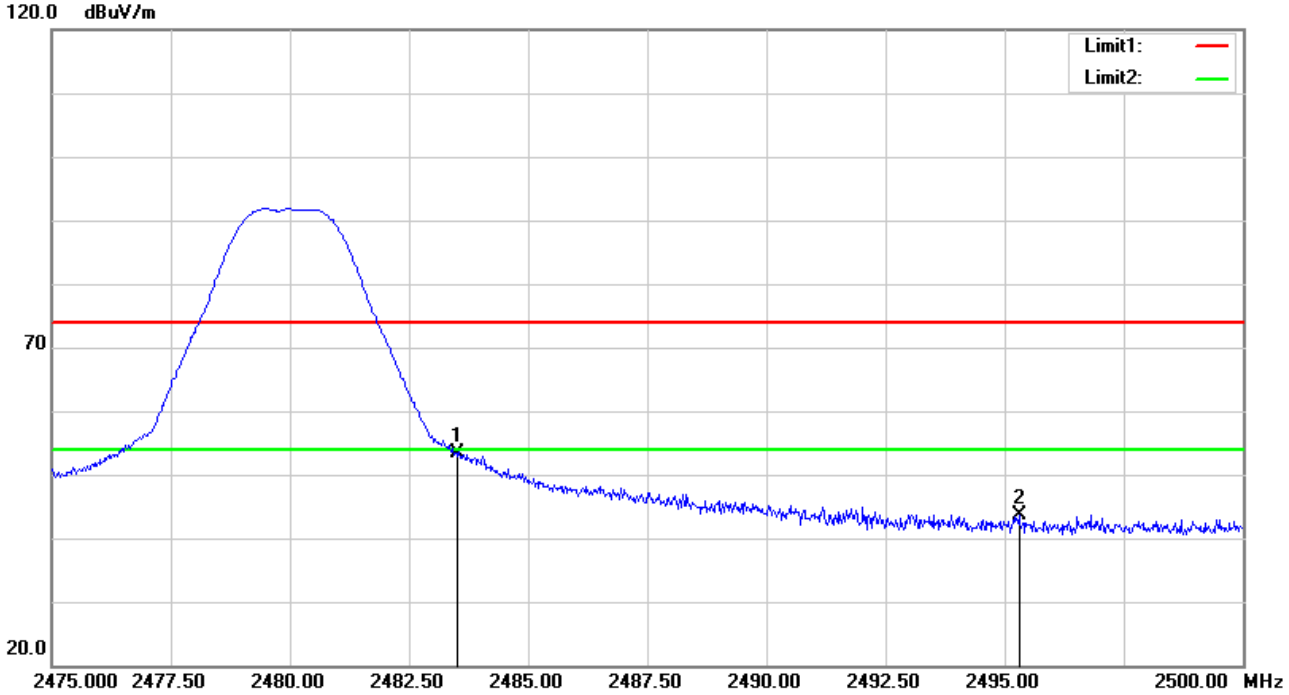
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2362.800	42.54	3.93	46.47	74.00	-27.53	peak
2	2390.000	40.43	4.34	44.77	74.00	-29.23	peak

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



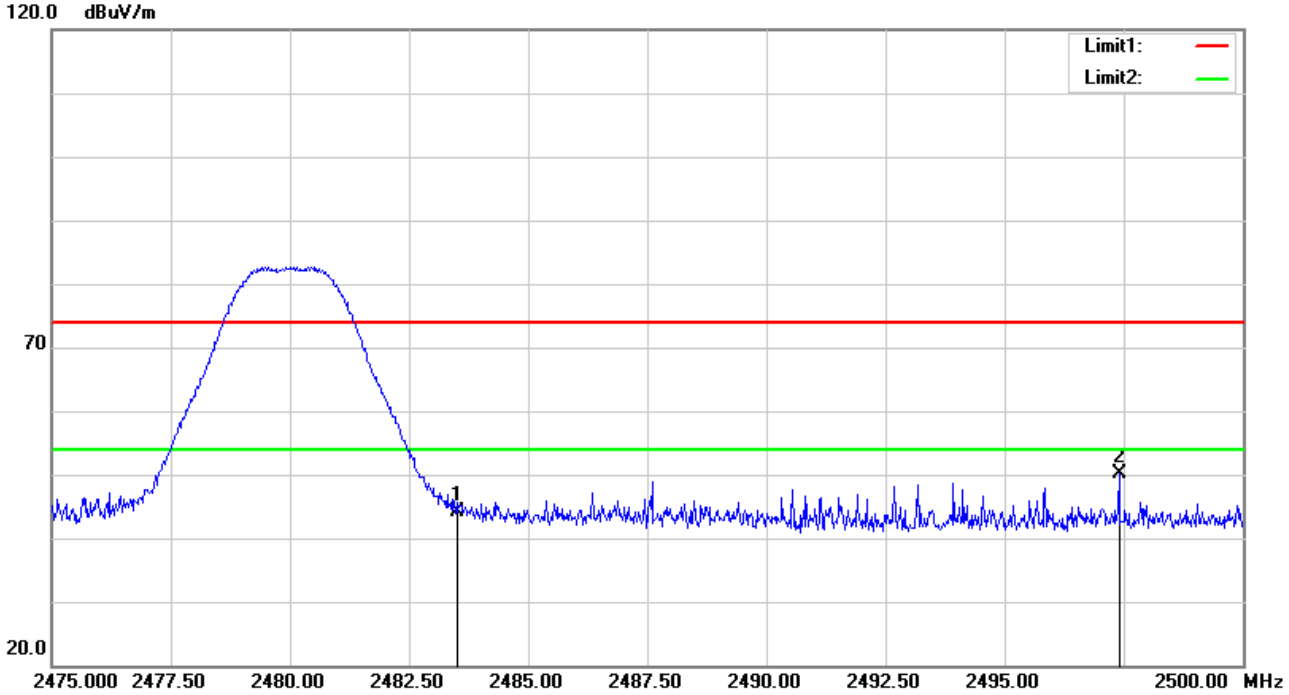
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2363.800	40.12	3.95	44.07	74.00	-29.93	peak
2	2390.000	36.91	4.34	41.25	74.00	-32.75	peak

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	48.80	4.60	53.40	74.00	-20.60	peak
2	2495.300	38.95	4.63	43.58	74.00	-30.42	peak

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	39.57	4.60	44.17	74.00	-29.83	peak
2	2497.400	45.42	4.64	50.06	74.00	-23.94	peak