# RADIO TEST REPORT
# FCC ID: 2ANDX-CS20M

| | |
|---|---|
| **Product：** | Body Composition Scale |
| **Trade Mark：** | N/A |
| **Model Name：** | CS20M |
| **Family Model：** | Refer to Page 3 |
| **Report No.：** | S20041305904001 |

## Prepared for

Shenzhen Yolanda Technology Co., Ltd.

Room 201-202, No.49-1, 28 Area, Dabao Road, Xinan Street, Baoan, Shenzhen, P.R.China

## Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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# TEST RESULT CERTIFICATION

| | |
|---|---|
| **Applicant's name** | Shenzhen Yolanda Technology Co., Ltd. |
| Address | Room 201-202, No.49-1, 28 Area, Dabao Road, Xinan Street, Baoan, Shenzhen, P.R.China |
| **Manufacturer's Name** | Shenzhen Yolanda Technology Co., Ltd. |
| Address | Room 201-202, No.49-1, 28 Area, Dabao Road, Xinan Street, Baoan, Shenzhen, P.R.China |
| **Product description** | |
| Product name | Body Composition Scale |
| Model and/or type reference | CS20M |
| Family Model | Refer to Page 3 |
| Rating(s) | DC 4.5V powered by Battery |
| **Standards** | FCC Part15.249 |
| Test procedure | ANSI C63.10-2013 |

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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| | |
|---|---|
| **Date of Test** | |
| Date (s) of performance of tests | 13 Apr. 2020 ~ 25 May. 2020 |
| Date of Issue | 25 May. 2020 |
| Test Result | **Pass** |

Testing Engineer : Mary Hu

(Mary Hu)

Technical Manager : Jason Chen

(Jason Chen)

Authorized Signatory : Sam Chen

(Sam Chen)

| | |
|---|---|
| **Family Model：** | BHEZM, ES-CS20M-W1, ES-CS20M-W, MAES-28P1, MAES-28P1-JP, ES-26BB-B, ES-CS20M, ES-24M-B, ES-26M-W, ES-26M-B, ES-26P3, FT-24D-B, FT-24D-W, CS10, CS10C, CS20A, CS20B, CS20C, CS20C1, CS20D, CS20E, CS20F, CS20G, CS20H, CS20I, CS20J, CS20K, CS20X1, CS20X2, CS20X3, CS20L, CS20N, CS20M, CS20M1, CS20M2, CS20M3, CS20M4, CS20M5, CS20M6, CS20M7, CS20P, CS30A, CS30B, CS30C, CS30D, CS20Q, CS20Q1, SENSIT Mini , ABYON20N, UNOTEC XCALE II, IK-PCA001, Fitfy Lite (FF30G), 31400, 31401, 31402, 31403, 31406, AS-01A, NX4501, GB10W, iwellness, ZK-320J, US20E, FF20G, BH20E, BH20B, BH20HI, MF-BS02, ES-CS20C |

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15, Subpart C (15.249) | | | |
|---|---|---|---|
| Standard Section | Test Item | Judgment | Remark |
| 15.207 | Conducted Emission | N/A | |
| 15.203 | Antenna Requirement | Pass | |
| 15.249<br>15.209 | Radiated Spurious Emission | Pass | |
| 15.249(2) | Frequency Tolerance | Pass | |
| 15.249(a) | Fundamental Measurement | Pass | |
| 15.205 | Band Edge Emission | Pass | |
| 15.249 | Occupied Bandwidth | Pass | |

## 1.1 TEST FACILITY

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District
Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

| Site Description | | |
|---|---|---|
| CNAS-Lab. | : | The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)<br>The Certificate Registration Number is L5516. |
| IC-Registration | | The Certificate Registration Number is 9270A.<br>CAB identifier:CN0074 |
| FCC- Accredited | | Test Firm Registration Number: 463705.<br>Designation Number: CN1184 |
| A2LA-Lab. | | The Certificate Registration Number is 4298.01<br>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.<br>This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system<br>(refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009). |
| Name of Firm | : | Shenzhen NTEK Testing Technology Co., Ltd. |
| Site Location | : | 1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District<br>Shenzhen, Guangdong, China |

## 1.2 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 | Conducted Emission Test | ±1.38dB |
| 2 | RF power,conducted | ±0.16dB |
| 3 | Spurious emissions,conducted | ±0.21dB |
| 4 | All emissions,radiated(<1G) | ±4.68dB |
| 5 | All emissions,radiated(>1G) | ±4.89dB |
| 6 | Temperature | ±0.5°C |
| 7 | Humidity | ±2% |

# 2. GENERAL INFORMATION

## 2.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| Equipment | Body Composition Scale |
| Trade Mark | N/A |
| Model Name | CS20M |
| Family Model | Refer to Page 3 |
| Model Difference | All models are the same circuit and RF module, except the model name and color |
| Product Description | The EUT is a Body Composition Scale<br>Operation Frequency: 2402MHz-2480MHz<br>Modulation Type: GFSK<br>Antenna Designation: PCB Antenna<br>Antenna Gain(Peak) 0.5 dBi<br><br>Based on the application, features, or specification exhibited in User's Manual. More details of EUT technical specification, please refer to the User's Manual. |
| Channel List | Please refer to the Note 2. |
| Rating | DC 4.5V powered by Battery |
| Adapter | N/A |
| Battery | 3*AAA Alkaline batteries |
| HW Version | COM191F1X |
| SW Version | N/A |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

| Channel No. | Frequency | Channel No. | Frequency | Channel No. | Frequency |
|---|---|---|---|---|---|
| 37 | 2402 | 12 | 2430 | 26 | 2458 |
| 0 | 2404 | 13 | 2432 | 27 | 2460 |
| 1 | 2406 | 14 | 2434 | 28 | 2462 |
| 2 | 2408 | 15 | 2436 | 29 | 2464 |
| 3 | 2410 | 16 | 2438 | 30 | 2466 |
| 4 | 2412 | 17 | 2440 | 31 | 2468 |
| 5 | 2414 | 18 | 2442 | 32 | 2470 |
| 6 | 2416 | 19 | 2444 | 33 | 2472 |
| 7 | 2418 | 20 | 2446 | 34 | 2474 |
| 8 | 2420 | 21 | 2448 | 35 | 2476 |
| 9 | 2422 | 22 | 2450 | 36 | 2478 |
| 10 | 2424 | 23 | 2452 | 39 | 2480 |
| 38 | 2426 | 24 | 2454 | | |
| 11 | 2428 | 25 | 2456 | | |

3.

Table for Filed Antenna

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | NOTE |
|---|---|---|---|---|---|---|
| 1 | N/A | N/A | PCB Antenna | N/A | 0.5 | Antenna |

## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|---|---|
| Mode 1 | TX 2402MHz |
| Mode 2 | TX 2440MHz |
| Mode 3 | TX 2480MHz |
| Mode 4 | Normal link |

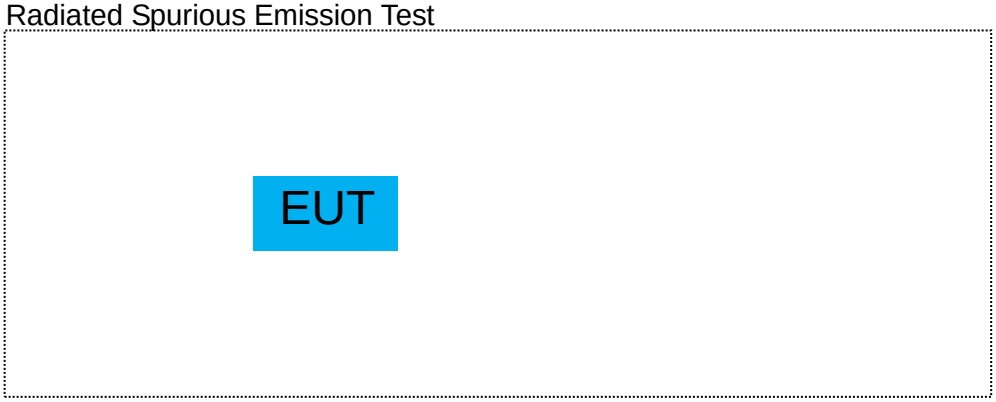
| **For Radiated Spurious Emission** | |
|---|---|
| Pretest Mode | Description |
| Mode 1 | TX 2402MHz |
| Mode 2 | TX 2440MHz |
| Mode 3 | TX 2480MHz |

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

## 2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



## 2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|---|---|---|---|---|---|
| E-1 | Body Composition Scale | N/A | CS20M | N/A | EUT |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Item | Cable Type | Shielded Type | Ferrite Core | Length | Note |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

## 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

**Radiation Test equipment**

| | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|---|---|---|---|---|---|---|---|
| 1 | Spectrum Analyzer | Aglient | E4407B | MY45108040 | 2019.05.12<br>2020.05.11 | 2020.05.11<br>2021.05.10 | 1 year |
| 2 | Spectrum Analyzer | Agilent | N9020A | MY49100060 | 2019.05.12<br>2020.05.11 | 2020.05.11<br>2021.05.10 | 1 year |
| 3 | Spectrum Analyzer | Agilent | E4440A | MY41000130 | 2019.08.28 | 2020.08.27 | 1 year |
| 4 | Spectrum Analyzer | R&S | FSV40 | 101417 | 2019.08.28 | 2020.08.27 | 1 year |
| 5 | Test Receiver | R&S | ESPI7 | 101318 | 2019.05.12<br>2020.05.11 | 2020.05.11<br>2021.05.10 | 1 year |
| 6 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2019.04.12<br>2020.04.11 | 2020.04.11<br>2021.04.10 | 1 year |
| 7 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200983705 | 2017.05.12<br>2020.05.11 | 2020.05.11<br>2023.05.10 | 3 year |
| 8 | Horn Antenna | EM | EM-AH-10180 | 2011071402 | 2020.04.15<br>2019.04.16 | 2021.04.14<br>2020.04.15 | 1 year |
| 9 | Broadband Horn Antenna | SCHWARZBECK | BBHA 9170 | 803 | 2019.12.11 | 2020.12.10 | 1 year |
| 10 | Amplifier | EMC | EMC051835SE | 980246 | 2019.08.06 | 2020.08.05 | 1 year |
| 11 | Active Loop Antenna | SCHWARZBECK | FMZB 1519 B | 055 | 2019.12.11 | 2020.12.10 | 1 year |
| 12 | Power Meter | DARE | RPR3006W | 15I00041SNO84 | 2019.08.06 | 2020.08.05 | 1 year |
| 13 | Test Cable (9KHz-30MHz) | N/A | R-01 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 14 | Test Cable (30MHz-1GHz) | N/A | R-02 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 15 | High Test Cable(1G-40GHz) | N/A | R-03 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 16 | High Test Cable(1G-40GHz) | N/A | R-04 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 17 | Filter | TRILTHIC | 2400MHz | 29 | 2019.05.12<br>2020.05.11 | 2020.05.11<br>2021.05.10 | 3 year |
| 18 | temporary antenna connector (Note) | NTS | R001 | N/A | N/A | N/A | N/A |

Note:
We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

**Conduction Test equipment**

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|---|---|---|---|---|---|---|---|
| 1 | Test Receiver | R&S | ESCI | 101160 | 2019.05.14<br>2020.05.13 | 2020.05.13<br>2021.05.12 | 1 year |
| 2 | LISN | R&S | ENV216 | 101313 | 2019.04.16<br>2020.04.15 | 2020.04.15<br>2021.04.14 | 1 year |
| 3 | LISN | SCHWARZBECK | NNLK 8129 | 8129245 | 2019.05.14<br>2020.05.13 | 2020.05.13<br>2021.05.12 | 1 year |
| 4 | 50Ω Coaxial Switch | ANRITSU CORP | MP59B | 6200983704 | 2017.05.12<br>2020.05.11 | 2020.05.11<br>2023.05.10 | 3 year |
| 5 | Test Cable (9KHz-30MHz) | N/A | C01 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 6 | Test Cable (9KHz-30MHz) | N/A | C02 | N/A | 2018.04.21 | 2021.04.20 | 3 year |
| 7 | Test Cable (9KHz-30MHz) | N/A | C03 | N/A | 2018.04.21 | 2021.04.20 | 3 year |

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable which is scheduled for calibration every 3 years.

# 3. ANTENNA REQUIREMENT

## 3.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

## 3.2 EUT ANTENNA

The EUT antenna is permanent attached PCB antenna(Gain:0.5dBi). It comply with the standard requirement.

## 3.3 CONDUCTED EMISSION MEASUREMENT

### 3.3.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| Frequency(MHz) | Conducted Emission Limit | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66-56* | 56-46* |
| 0.5-5.0 | 56 | 46 |
| 5.0-30.0 | 60 | 50 |

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---|---|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

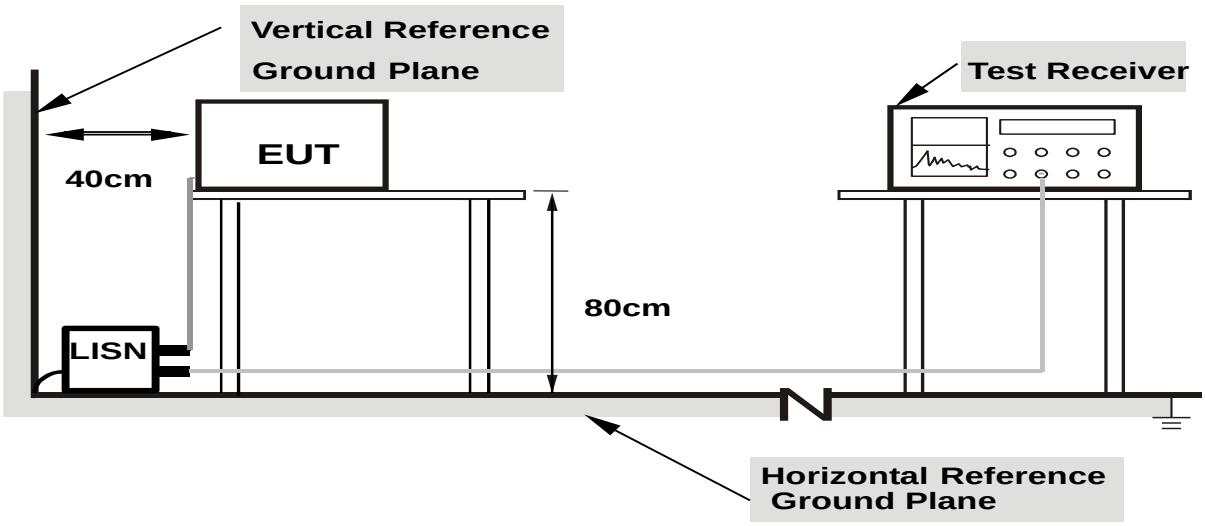
### 3.3.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.
Margin=Measure-ment-Limits, Measure-ment=Reading level+Correct Factor

### 3.3.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.3.4 TEST SETUP




Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

### 3.2.5 TEST RESULT

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 26 ℃ | Relative Humidity： | 54% |
| Pressure： | 1010hPa | Phase： | N/A |
| Test Voltage ： | N/A | Test Mode： | N/A |

Note: This product can only be powered by 3 AAA batteries, no charging port, so no AC power-line conducted test is required.

## 3.4 RADIATED EMISSION MEASUREMENT

### 3.4.1 Radiated Emission Limits ( FCC 15.209 )

| Frequencies (MHz) | Field Strength (micorvolts/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 |
| Frequency (MHz) | Limit (dBuV) | |
| 30~88 | 40 | 3 |
| 88~216 | 43.5 | 3 |
| 216~960 | 46 | 3 |
| 960 -10000 | 54.00 | 3 |
| *902 - 928 | 94.00 | 3 |

Note:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

(3) *Note: This is the limit for the fundamental frequency.

LIMITS OF RADIATED EMISSION MEASUREMENT ( FCC 15.249)

| Frequency of Emission (MHz) | Field Strength of fundamental ((millivolts /meter) | Field Strength of Harmonics (microvolts/meter) |
|---|---|---|
| 2400-2483.5 | 50 | 500 |

Notes:

(1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

| Spectrum Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1MHz / 1MHz for Peak |

| Receiver Parameter | Setting |
|---|---|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

### 3.4.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

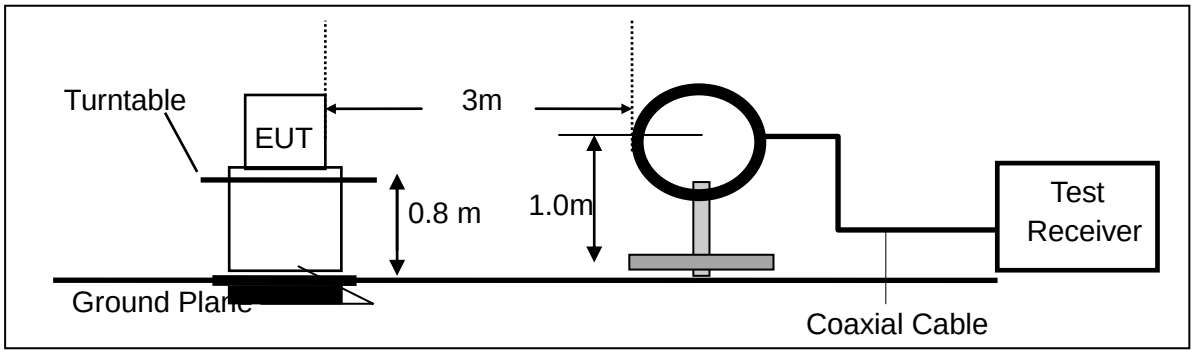
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

### 3.4.3 DEVIATION FROM TEST STANDARD

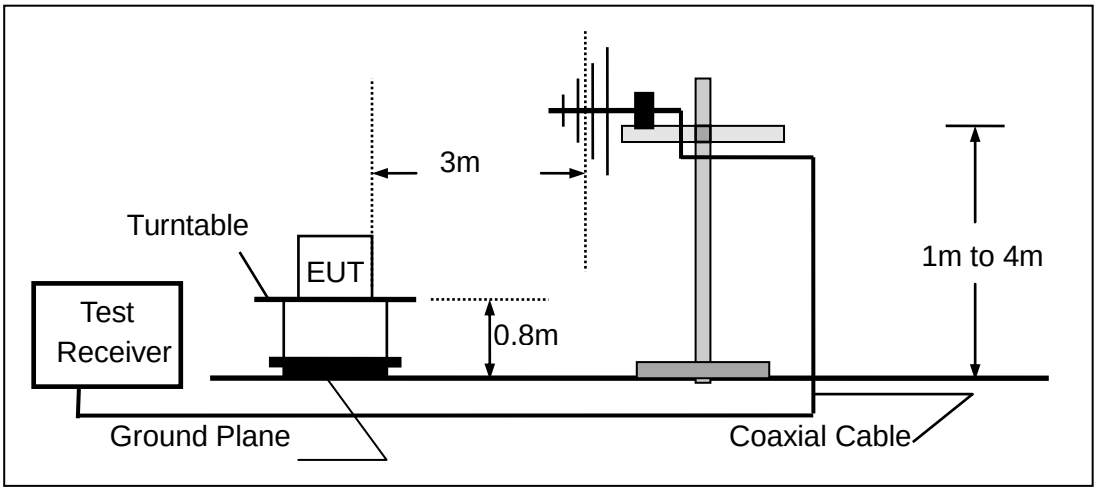
No deviation

（A）Radiated Emission Test-Up Frequency Below 30MHz

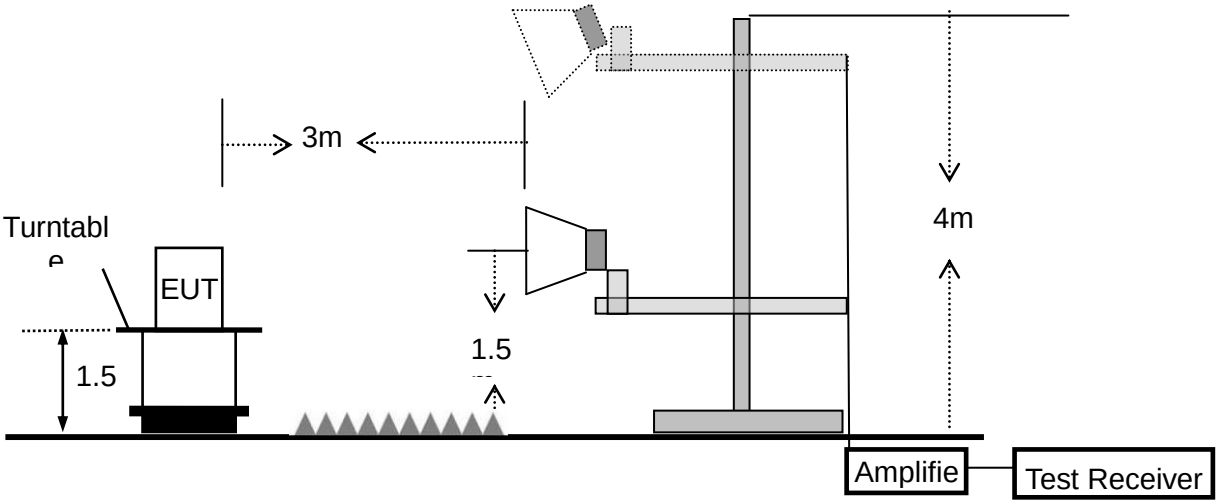
(a)




（B）Radiated Emission Test-Up Frequency 30MHz~1GHz




（C）Radiated Emission Test-Up Frequency Above 1GHz



### 3.4.4 TEST RESULTS (BELOW 30MHz)

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name. ： | CS20M |
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX | Polarization : | -- |

| Freq. | Reading | Limit | Margin | State |
|---|---|---|---|---|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F |
| -- | -- | -- | -- | PASS |
| -- | -- | -- | -- | PASS |

**NOTE:**

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Remark:1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

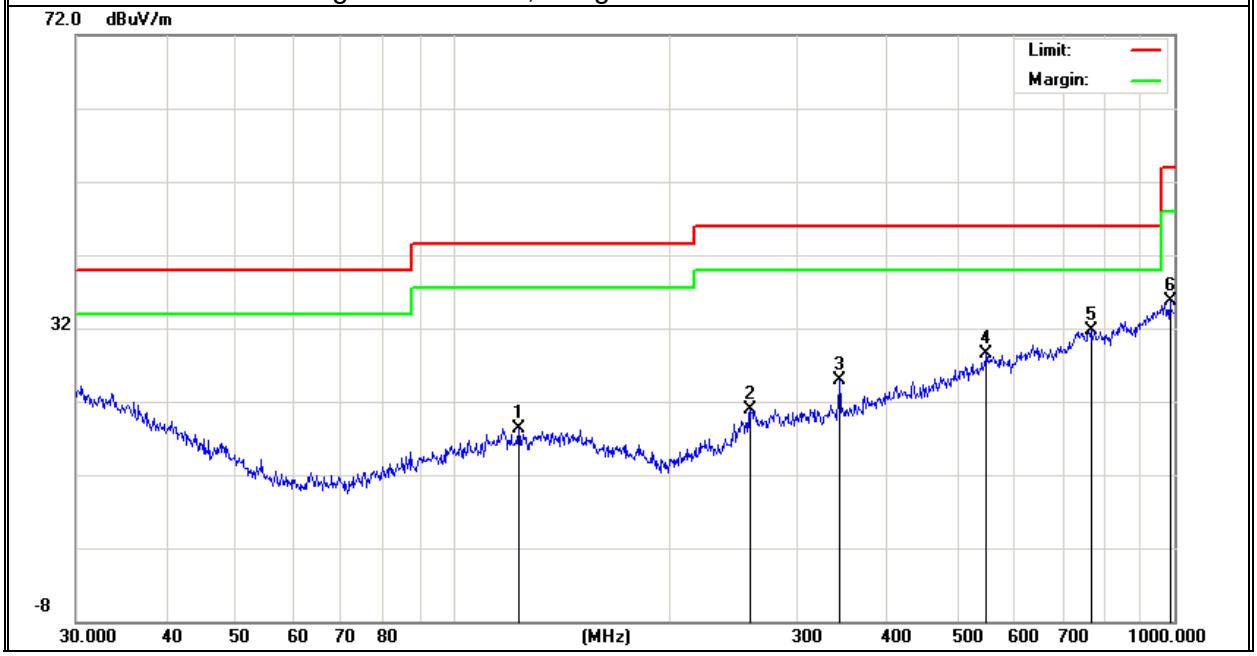
### 3.4.5 TEST RESULTS (BELOW 1000 MHz)

All the modes have been tested, and the worst result was report as below:

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | Mode 1 | Polarization : | Vertical |

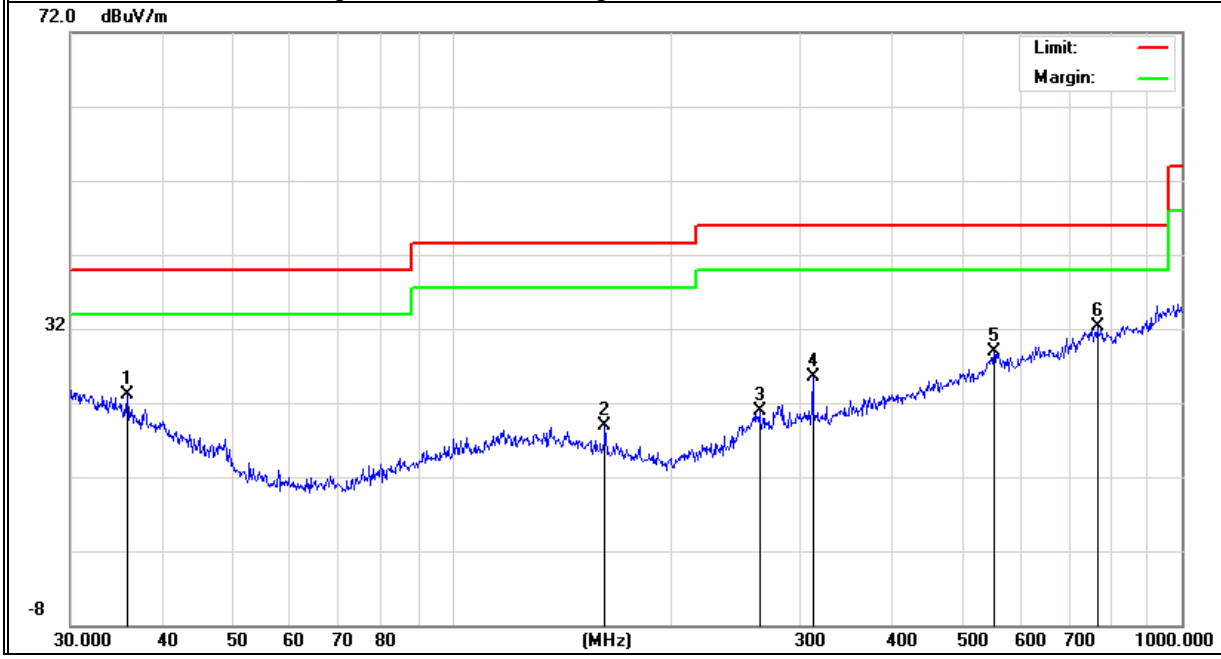
| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| V | 123.2655 | 6.1 | 12.24 | 18.34 | 43.50 | -25.16 | QP |
| V | 258.3263 | 6.35 | 14.6 | 20.95 | 46.00 | -25.05 | QP |
| V | 343.18 | 8.69 | 16.15 | 24.84 | 46.00 | -21.16 | QP |
| V | 549.0193 | 6.07 | 22.53 | 28.6 | 46.00 | -17.4 | QP |
| V | 766.0571 | 6.85 | 24.89 | 31.74 | 46.00 | -14.26 | QP |
| V | 986.0716 | 7.4 | 28.29 | 35.69 | 54.00 | -18.31 | QP |

**Remark:**
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| H | 35.8746 | 7.0 | 16.1 | 23.1 | 40.00 | -16.9 | QP |
| H | 162.0414 | 8.1 | 10.72 | 18.82 | 43.50 | -24.68 | QP |
| H | 263.819 | 6.35 | 14.52 | 20.87 | 46.00 | -25.13 | QP |
| H | 312.1792 | 10.09 | 15.37 | 25.46 | 46.00 | -20.54 | QP |
| H | 552.8832 | 6.42 | 22.54 | 28.96 | 46.00 | -17.04 | QP |
| H | 766.0571 | 7.42 | 24.89 | 32.31 | 46.00 | -13.69 | QP |

**Remark:**
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

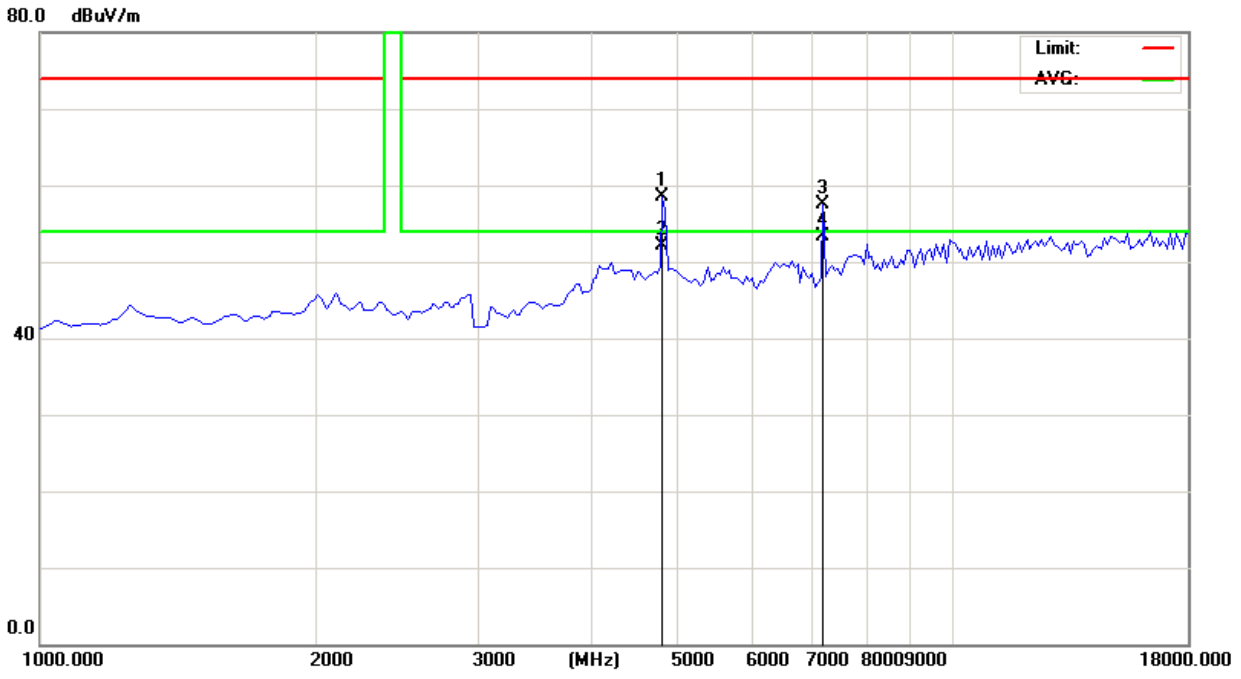


### 3.4.6 TEST RESULTS (ABOVE 1000 MHZ)

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2402MHz | Polarization： | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4804 | 44.08 | 13.63 | 57.71 | 74.00 | -16.29 | peak |
| 4804 | 38.08 | 13.63 | 51.71 | 54.00 | -2.29 | AVG |
| 7206 | 41.55 | 16 | 57.55 | 74.00 | -16.45 | peak |
| 7206 | 37.25 | 16 | 53.25 | 54.00 | -0.75 | AVG |

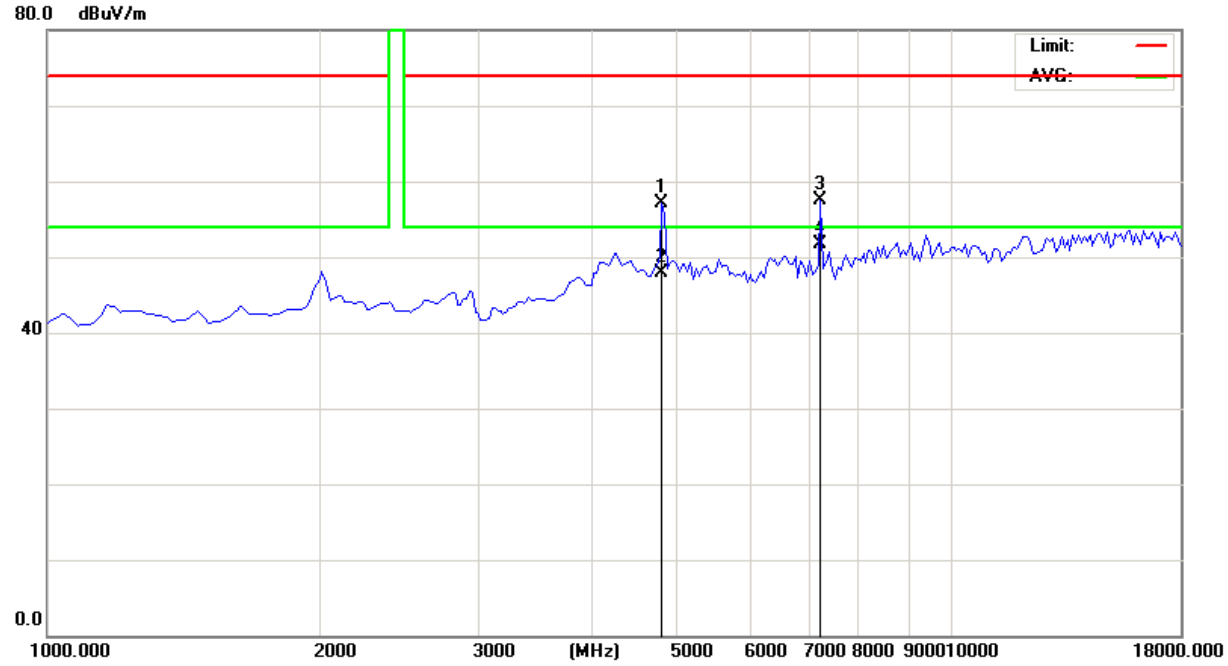
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.



| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2402MHz | Polarization： | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4804 | 43.52 | 13.63 | 57.15 | 74.00 | -16.85 | peak |
| 4804 | 34.24 | 13.63 | 47.87 | 54.00 | -6.13 | AVG |
| 7206 | 41.57 | 16 | 57.57 | 74.00 | -16.43 | peak |
| 7206 | 35.78 | 16 | 51.78 | 54.00 | -2.22 | AVG |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.

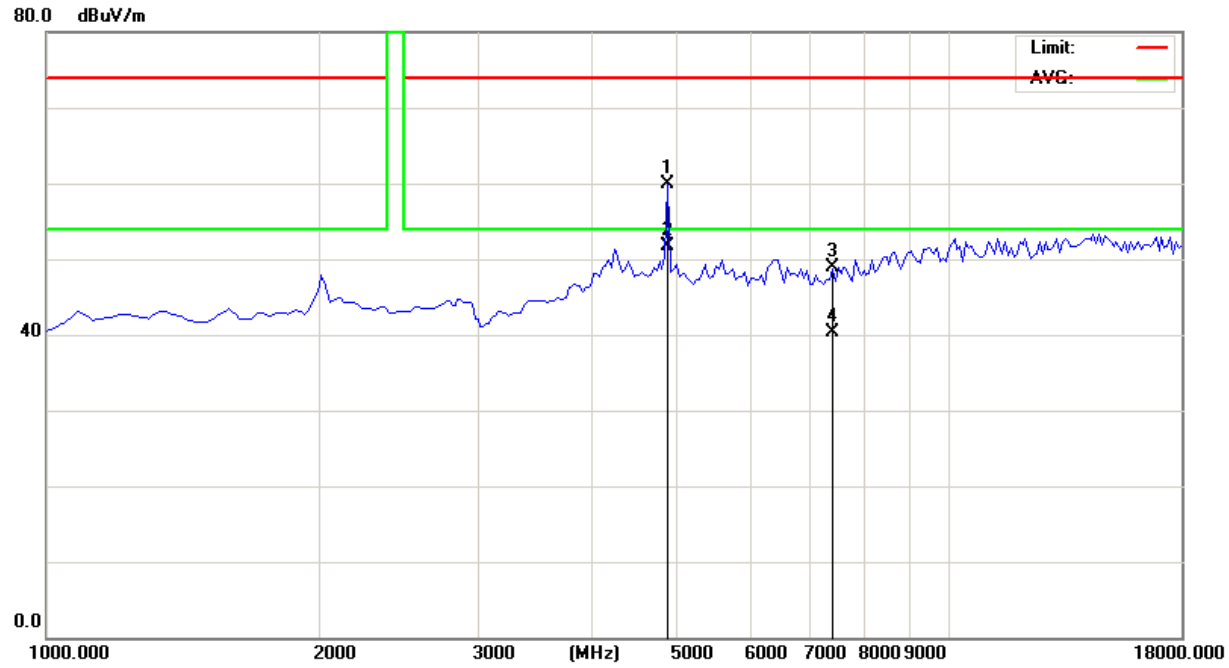



Note: EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report(X orientation).

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC4.5V |
| Test Mode ： | TX 2440MHz | Polarization： | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4880 | 46.29 | 13.55 | 59.84 | 74.00 | -14.16 | peak |
| 4880 | 38.14 | 13.55 | 51.69 | 54.00 | -2.31 | AVG |
| 7440 | 32.64 | 16.36 | 49.00 | 74.00 | -25.00 | peak |
| 7440 | 23.9 | 16.36 | 40.26 | 54.00 | -13.74 | AVG |

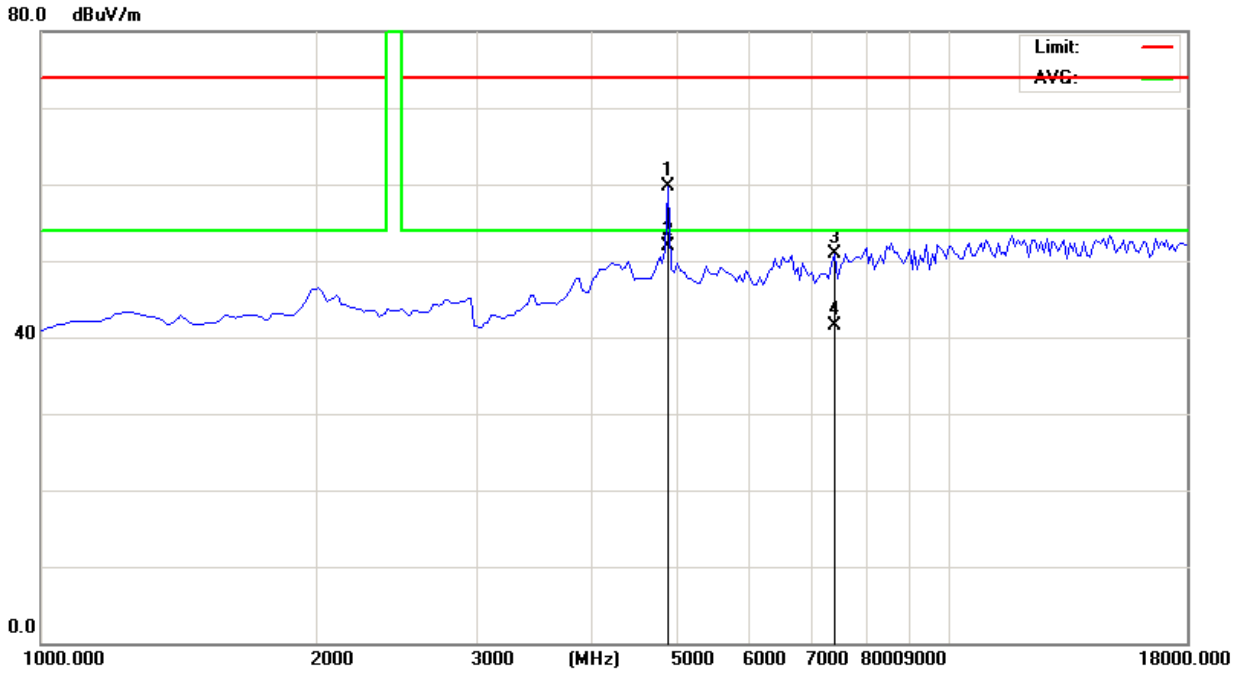
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.



| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC4.5V |
| Test Mode ： | TX 2440MHz | Polarization： | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|
| 4880 | 46.18 | 13.55 | 59.73 | 74.00 | -14.27 | peak |
| 4880 | 38.38 | 13.55 | 51.93 | 54.00 | -2.07 | AVG |
| 7440 | 34.54 | 16.36 | 50.9 | 74.00 | -23.1 | peak |
| 7440 | 25.24 | 16.36 | 41.6 | 54.00 | -12.4 | AVG |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.

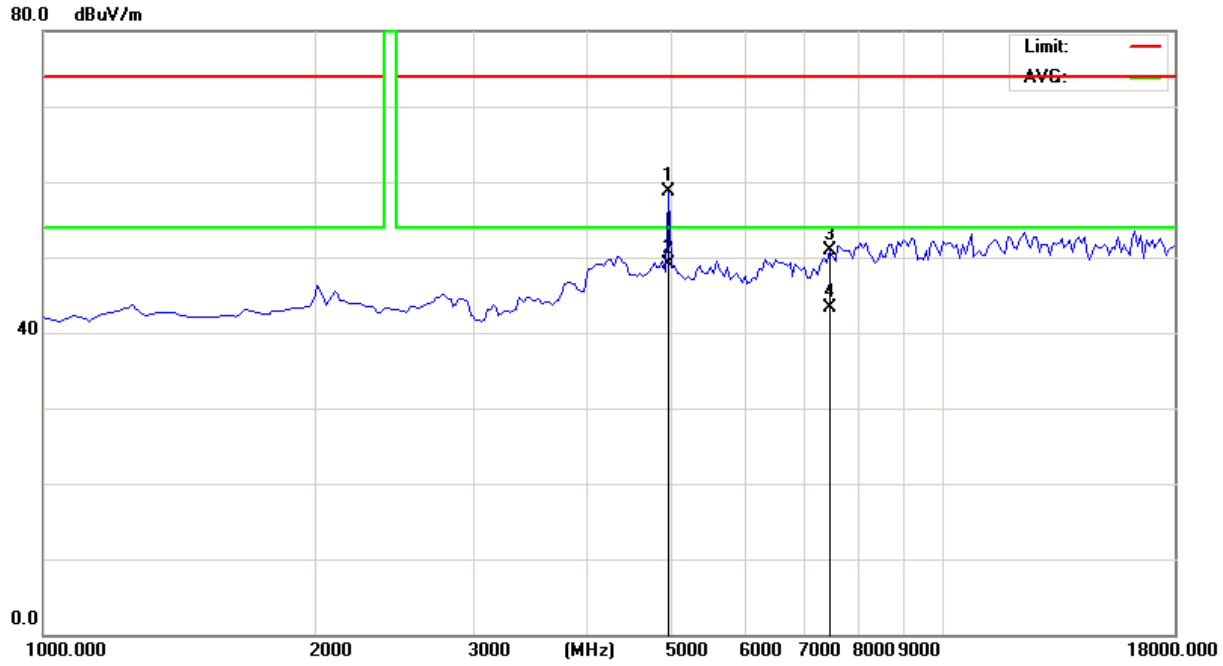



Note: EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report(X orientation).

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2480MHz | Polarization： | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4960 | 45.28 | 13.44 | 58.72 | 74.00 | -15.28 | peak |
| 4960 | 35.74 | 13.44 | 49.18 | 54.00 | -4.82 | AVG |
| 7440 | 34.55 | 16.36 | 50.91 | 74.00 | -23.09 | peak |
| 7440 | 26.88 | 16.36 | 43.24 | 54.00 | -10.76 | AVG |

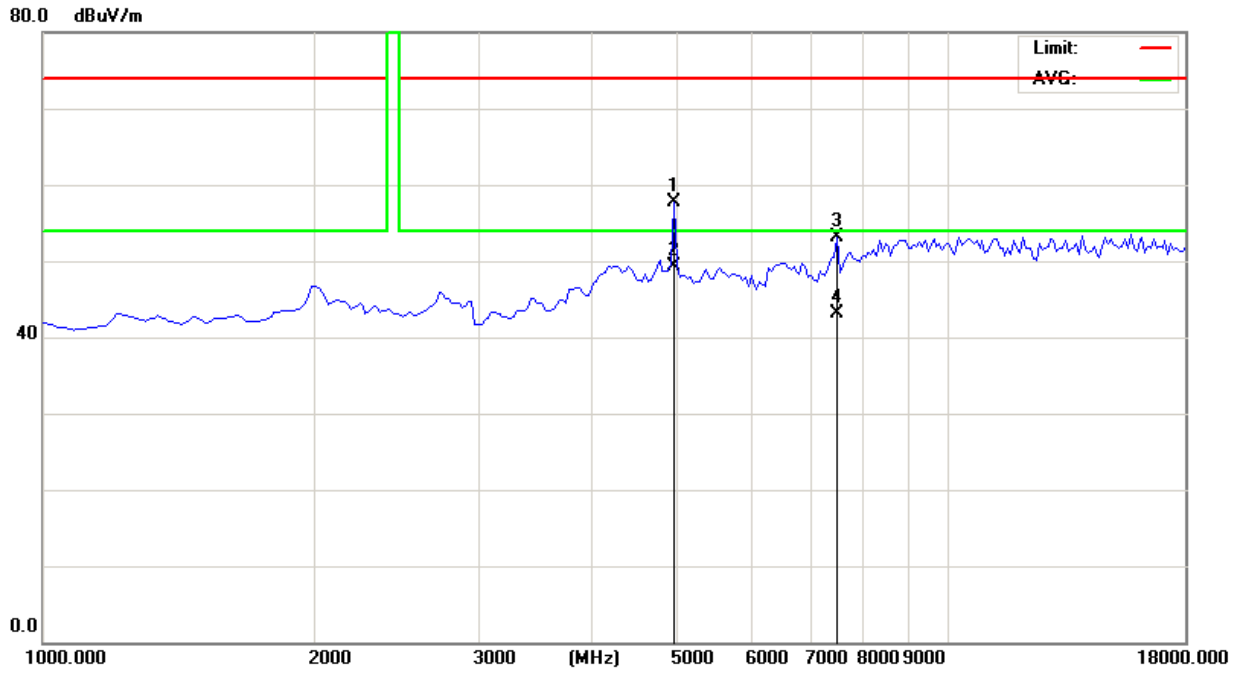
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.



| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2480MHz | Polarization： | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4960 | 44.3 | 13.44 | 57.74 | 74.00 | -16.26 | peak |
| 4960 | 35.89 | 13.44 | 49.33 | 54.00 | -4.67 | AVG |
| 7440 | 36.78 | 16.36 | 53.14 | 74.00 | -20.86 | peak |
| 7440 | 26.78 | 16.36 | 43.14 | 54.00 | -10.86 | AVG |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
No emission above 18GHz.



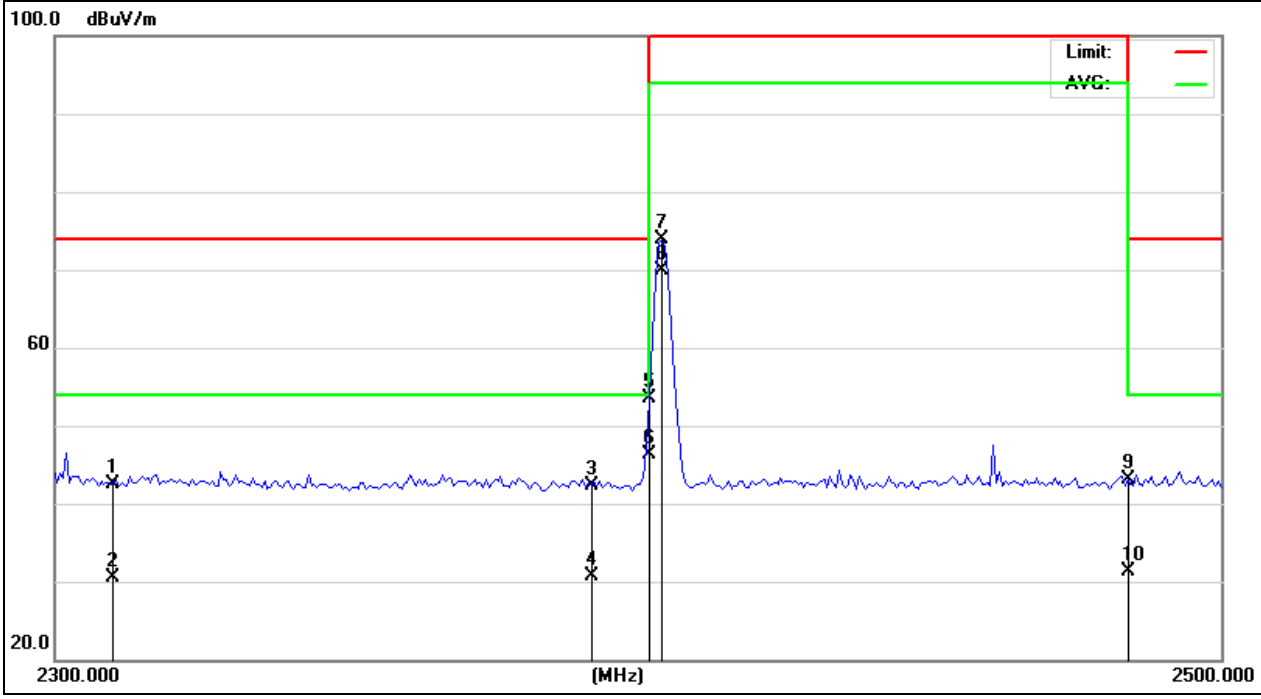

Note: EUT Pre-scan X/Y/Z orientation, only worst case is presented in the report(X orientation).

### 3.4.7 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2402MHz | Polarization： | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 2310 | 37.6 | 4.9 | 42.5 | 74.00 | -31.5 | peak |
| 2310 | 25.6 | 4.9 | 30.5 | 54.00 | -23.5 | AVG |
| 2390 | 37.75 | 4.58 | 42.33 | 74.00 | -31.67 | peak |
| 2390 | 26.06 | 4.58 | 30.64 | 54.00 | -23.36 | AVG |
| 2400 | 48.99 | 4.54 | 53.53 | 74.00 | -20.47 | peak |
| 2400 | 41.67 | 4.54 | 46.21 | 54.00 | -7.79 | AVG |
| 2402 | 69.29 | 4.54 | 73.83 | 114.00 | -40.17 | peak |
| 2402 | 65.28 | 4.54 | 69.82 | 94.00 | -24.18 | AVG |
| 2483.5 | 38.27 | 4.75 | 43.02 | 74.00 | -30.98 | peak |
| 2483.5 | 26.51 | 4.75 | 31.26 | 54.00 | -22.74 | AVG |

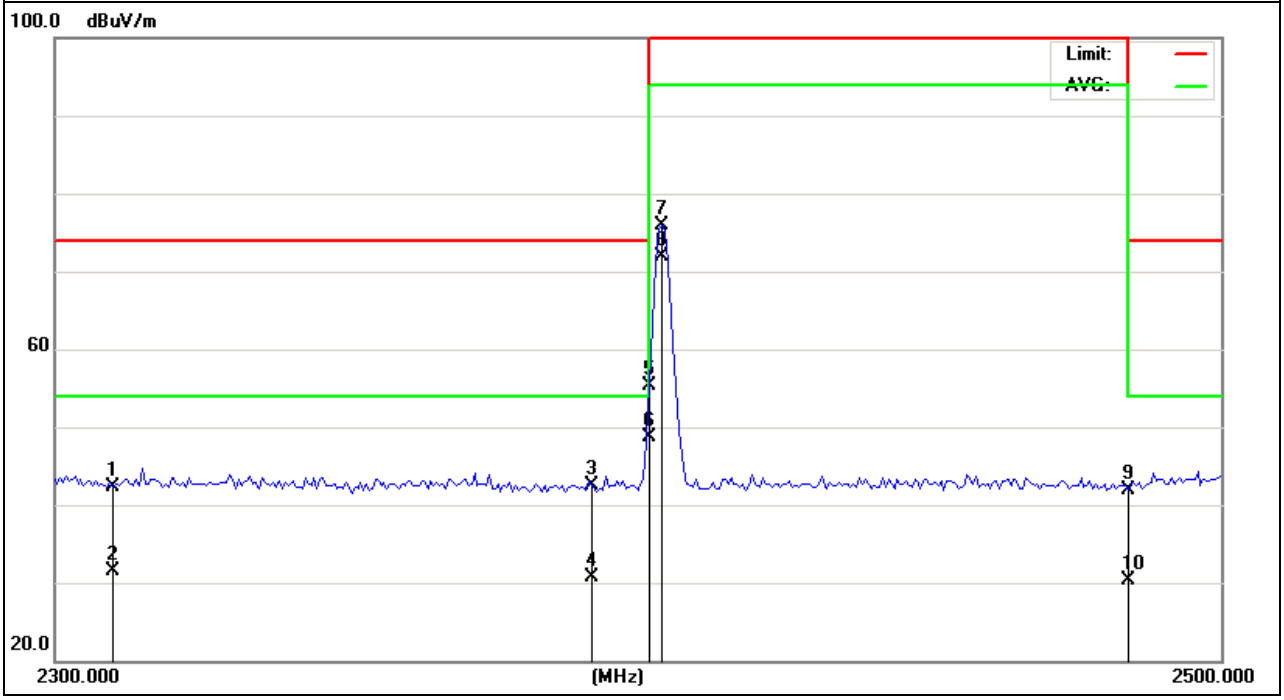
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2402MHz | Polarization： | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 2310 | 37.34 | 4.9 | 42.24 | 74.00 | -31.76 | peak |
| 2310 | 26.64 | 4.9 | 31.54 | 54.00 | -22.46 | AVG |
| 2390 | 37.98 | 4.58 | 42.56 | 74.00 | -31.44 | peak |
| 2390 | 26.07 | 4.58 | 30.65 | 54.00 | -23.35 | AVG |
| 2400 | 50.86 | 4.54 | 55.4 | 74.00 | -18.6 | peak |
| 2400 | 44.07 | 4.54 | 48.61 | 54.00 | -5.39 | AVG |
| 2402 | 71.3 | 4.54 | 75.84 | 114.00 | -38.16 | peak |
| 2402 | 67.32 | 4.54 | 71.86 | 94.00 | -22.14 | AVG |
| 2483.5 | 37.2 | 4.75 | 41.95 | 74.00 | -32.05 | pe ak |
| 2483.5 | 25.49 | 4.75 | 30.24 | 54.00 | -23.76 | AVG |

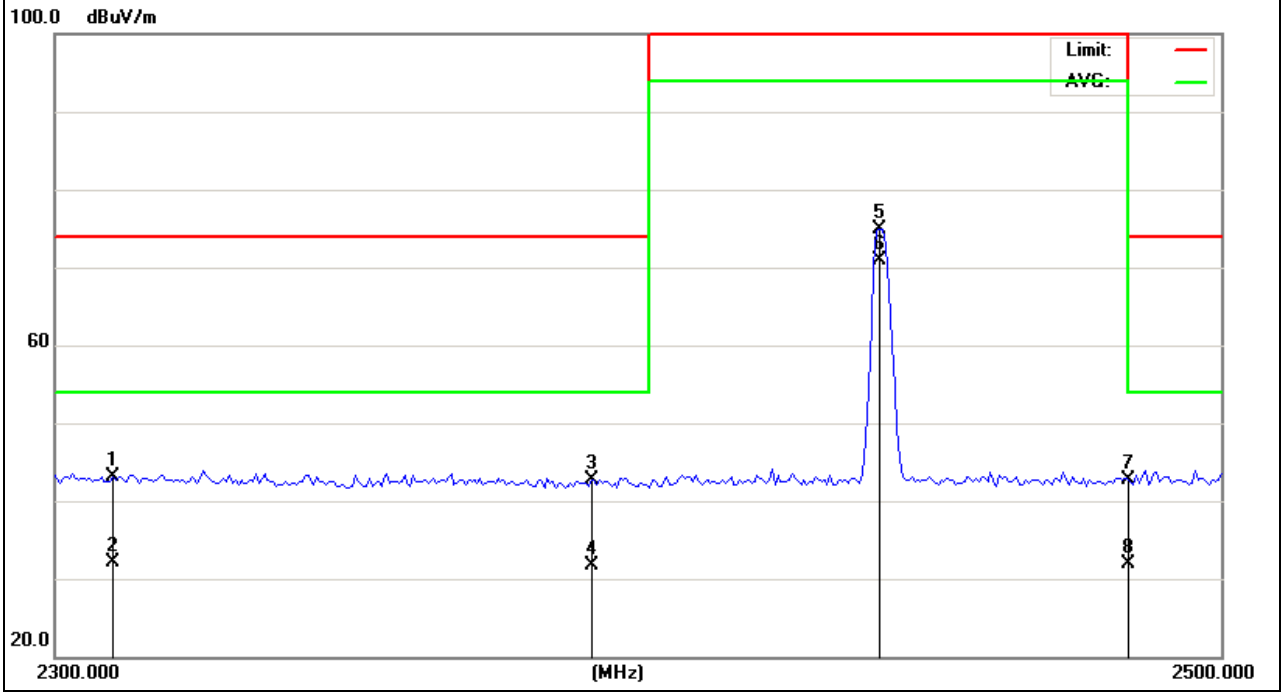
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| EUT： | Body Composition Scale | Model Name ： | CS20M |
|---|---|---|---|
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2440MHz | Polarization： | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|
| 2310 | 38.22 | 4.9 | 43.12 | 74.00 | -30.88 | peak |
| 2310 | 27.16 | 4.9 | 32.06 | 54.00 | -21.94 | AVG |
| 2390 | 38.1 | 4.58 | 42.68 | 74.00 | -31.32 | peak |
| 2390 | 27.07 | 4.58 | 31.65 | 54.00 | -22.35 | AVG |
| 2440 | 70.21 | 4.64 | 74.85 | 114.00 | -39.15 | peak |
| 2440 | 66.26 | 4.64 | 70.90 | 94.00 | -23.10 | AVG |
| 2483.5 | 37.93 | 4.75 | 42.68 | 74.00 | -31.32 | peak |
| 2483.5 | 27.07 | 4.75 | 31.82 | 54.00 | -22.18 | AVG |

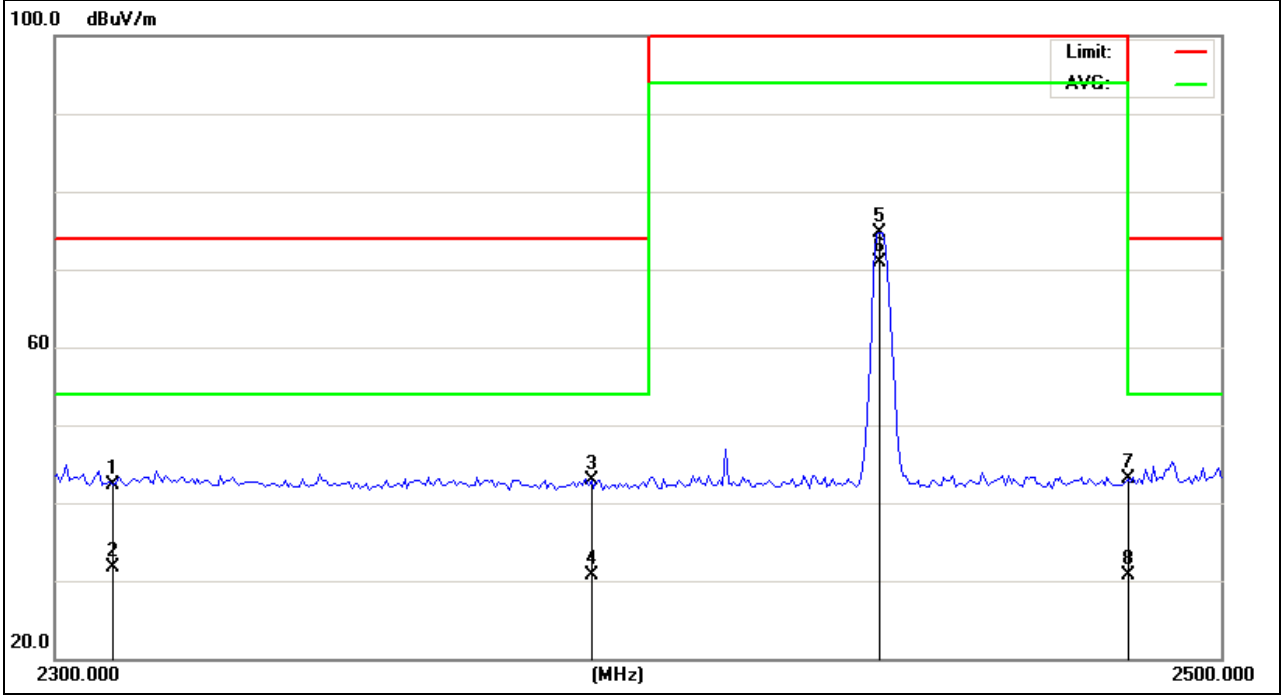
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| EUT： | Body Composition Scale | Model Name ： | CS20M |
|---|---|---|---|
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2440MHz | Polarization： | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 2310 | 37.47 | 4.9 | 42.37 | 74.00 | -31.63 | peak |
| 2310 | 26.78 | 4.9 | 31.68 | 54.00 | -22.32 | AVG |
| 2390 | 38.25 | 4.58 | 42.83 | 74.00 | -31.17 | peak |
| 2390 | 26.05 | 4.58 | 30.63 | 54.00 | -23.37 | AVG |
| 2440 | 70.13 | 4.64 | 74.77 | 114.00 | -39.23 | peak |
| 2440 | 66.25 | 4.64 | 70.89 | 94.00 | -23.11 | peak |
| 2483.5 | 38.39 | 4.75 | 43.14 | 74.00 | -30.86 | peak |
| 2483.5 | 25.9 | 4.75 | 30.65 | 54.00 | -23.35 | AVG |

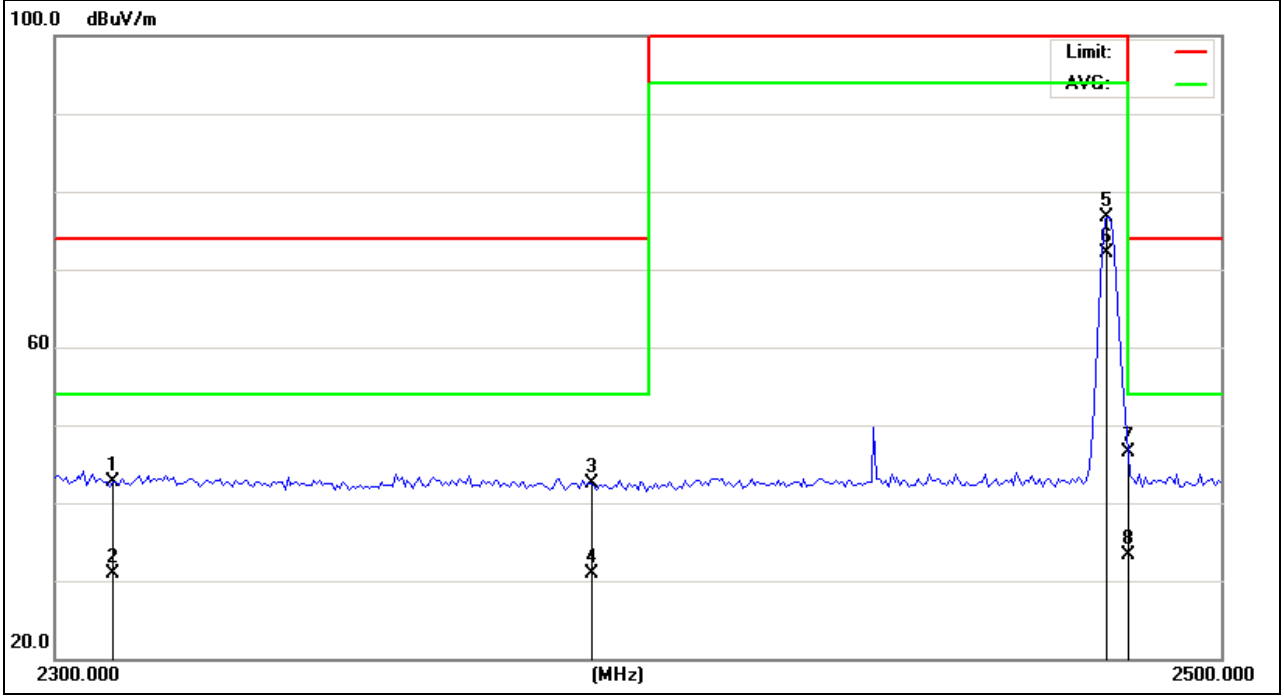
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2480MHz | Polarization： | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 2310 | 37.80 | 4.9 | 42.7 | 74.00 | -31.30 | peak |
| 2310 | 26.10 | 4.9 | 31 | 54.00 | -23.00 | AVG |
| 2390 | 37.84 | 4.58 | 42.42 | 74.00 | -31.58 | peak |
| 2390 | 26.41 | 4.58 | 30.99 | 54.00 | -23.01 | AVG |
| 2480 | 71.88 | 4.74 | 76.62 | 114.00 | -37.38 | peak |
| 2480 | 67.32 | 4.74 | 72.06 | 94.00 | -21.94 | AVG |
| 2483.5 | 41.79 | 4.75 | 46.54 | 74.00 | -27.46 | peak |
| 2483.5 | 28.50 | 4.75 | 33.25 | 54.00 | -20.75 | AVG |

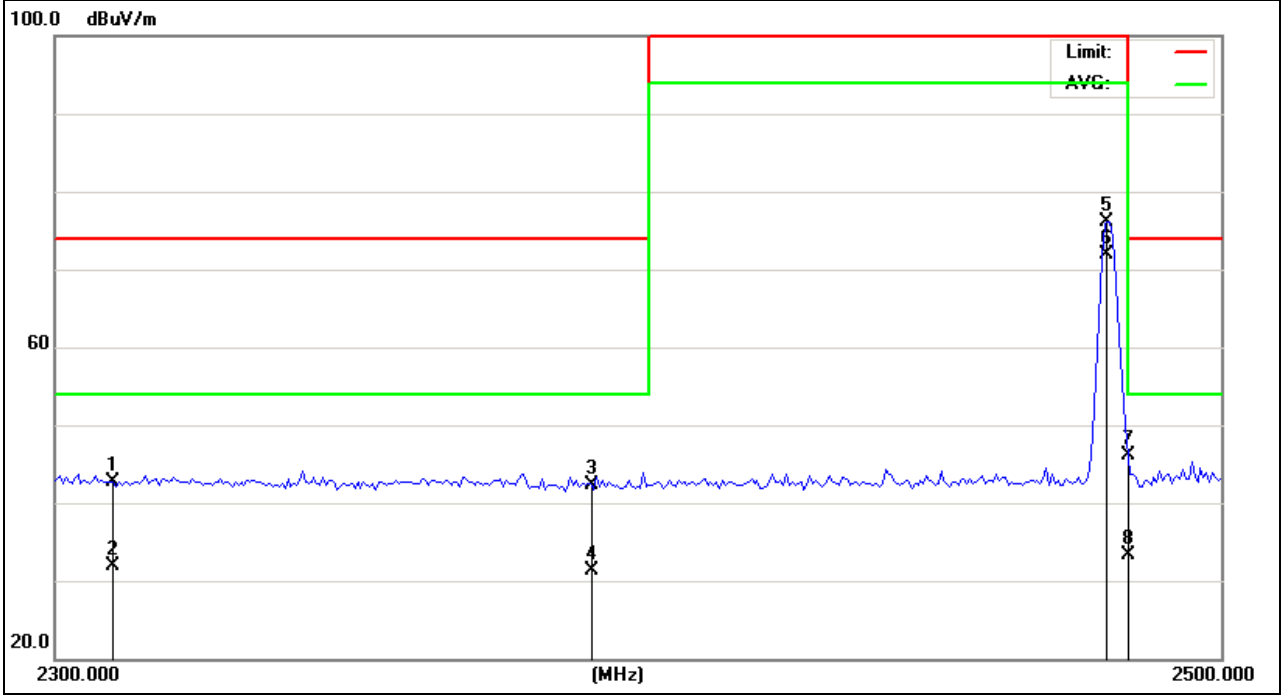
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| EUT： | Body Composition Scale | Model Name ： | CS20M |
|---|---|---|---|
| Temperature： | 25 ℃ | Relative Humidity： | 51% |
| Pressure： | 1010 hPa | Test Voltage ： | DC 4.5V |
| Test Mode ： | TX 2480MHz | Polarization： | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 2310 | 37.88 | 4.9 | 42.78 | 74.00 | -31.22 | peak |
| 2310 | 26.99 | 4.9 | 31.89 | 54.00 | -22.11 | AVG |
| 2390 | 37.66 | 4.58 | 42.24 | 74.00 | -31.76 | peak |
| 2390 | 26.63 | 4.58 | 31.21 | 54.00 | -22.79 | AVG |
| 2480 | 71.29 | 4.74 | 76.03 | 114.00 | -37.97 | peak |
| 2480 | 67.26 | 4.74 | 72.00 | 94.00 | -22.00 | AVG |
| 2483.5 | 41.37 | 4.75 | 46.12 | 74.00 | -27.88 | peak |
| 2483.5 | 28.48 | 4.75 | 33.23 | 54.00 | -20.77 | AVG |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



# 4. FREQUENCY TOLERANCE

## 4.1 FREQUENCY TOLERANCE LIMITS

The frequency tolerance of the carrier signal shall be maintained within ±0.001% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

## 4.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 10KHz, VBW≧RBW, Sweep time = Auto.

## 4.3 TEST SETUP


## 4.4 TEST RESULTS

| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 26 ℃ | Relative Humidity： | 53% |
| Pressure： | 1020 hPa | Test Power ： | DC 4.5V |
| Test Mode ： | TX (2402MHz/2440MHz/2480MHz) | | |

2402MHz

| Voltage (V) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| 3.825 | 2402 | 2402.012 | 5.00 | ±10 |
| 4.5 | 2402 | 2402.008 | 3.33 | ±10 |
| 5.175 | 2402 | 2402.006 | 2.50 | ±10 |

| Temperature (℃) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| -20 | 2402 | 2402.002 | 0.83 | ±10 |
| -10 | 2402 | 2402.006 | 2.50 | ±10 |
| 0 | 2402 | 2402.007 | 2.91 | ±10 |
| 10 | 2402 | 2402.005 | 2.08 | ±10 |
| 20 | 2402 | 2402.006 | 2.50 | ±10 |
| 30 | 2402 | 2402.004 | 1.67 | ±10 |
| 40 | 2402 | 2402.006 | 2.50 | ±10 |
| 50 | 2402 | 2402.007 | 2.91 | ±10 |

2440MHz

| Voltage (V) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| 3.825 | 2440 | 2440.01 | 4.10 | ±10 |
| 4.5 | 2440 | 2440.009 | 3.69 | ±10 |
| 5.175 | 2440 | 2440.008 | 3.28 | ±10 |

| Temperature (℃) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| -20 | 2440 | 2440.006 | 2.46 | ±10 |
| -10 | 2440 | 2440.007 | 2.87 | ±10 |
| 0 | 2440 | 2440.003 | 1.23 | ±10 |
| 10 | 2440 | 2440.007 | 2.87 | ±10 |
| 20 | 2440 | 2440.004 | 1.64 | ±10 |
| 30 | 2440 | 2440.006 | 2.46 | ±10 |
| 40 | 2440 | 2440.007 | 2.87 | ±10 |
| 50 | 2440 | 2440.006 | 2.46 | ±10 |

2480MHz

| Voltage (V) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| 3.825 | 2480 | 2480.009 | 3.63 | ±10 |
| 4.5 | 2480 | 2480.005 | 2.02 | ±10 |
| 5.175 | 2480 | 2480.002 | 0.81 | ±10 |

| Temperature (℃) | Frequency(MHz) | Reading(MHz) | Frequency Tolerance(ppm) | LIMIT(ppm) |
|---|---|---|---|---|
| -20 | 2480 | 2480.002 | 0.81 | ±10 |
| -10 | 2480 | 2480.001 | 0.40 | ±10 |
| 0 | 2480 | 2480.002 | 0.81 | ±10 |
| 10 | 2480 | 2480.003 | 1.21 | ±10 |
| 20 | 2480 | 2480.004 | 1.61 | ±10 |
| 30 | 2480 | 2480.003 | 1.21 | ±10 |
| 40 | 2480 | 2480.002 | 0.81 | ±10 |
| 50 | 2480 | 2480.005 | 2.02 | ±10 |

# 5. BANDWIDTH TEST

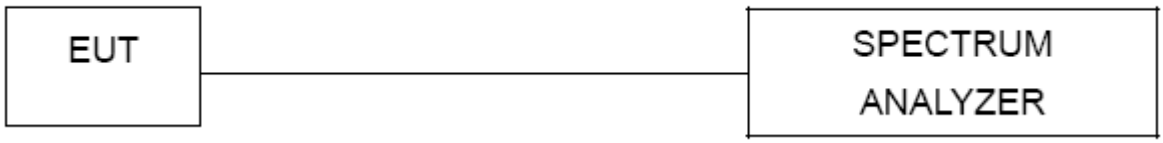
## 5.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW≧RBW, Sweep time = Auto.

## 5.1 DEVIATION FROM STANDARD

No deviation.

## 5.1 TEST SETUP

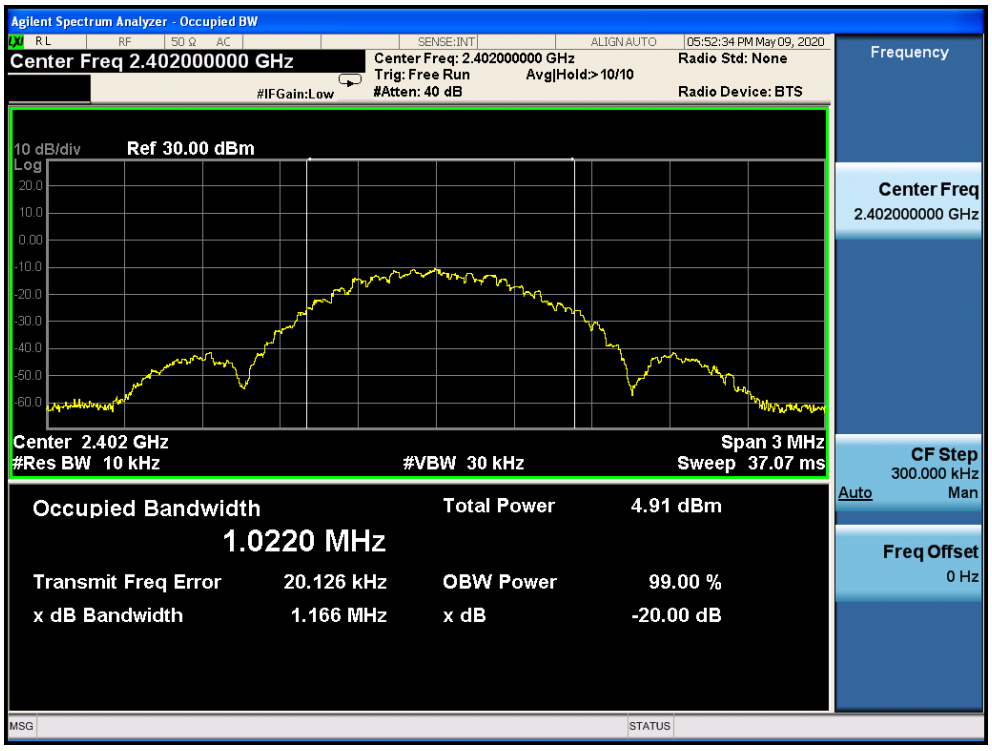


## 6. TEST RESULTS

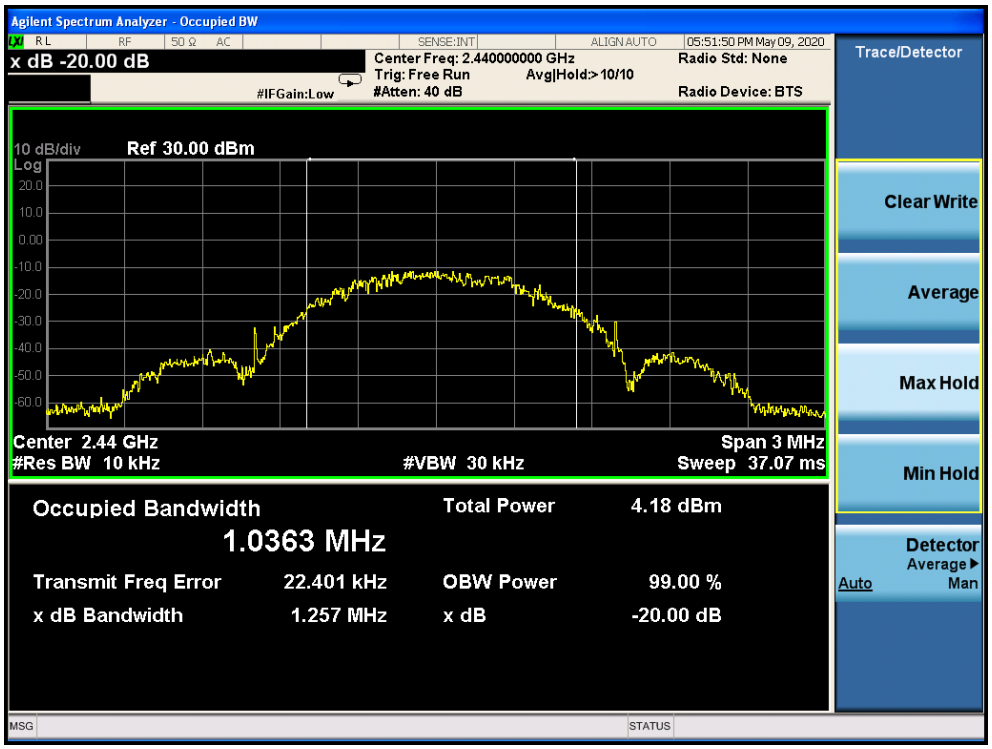
| | | | |
|---|---|---|---|
| EUT： | Body Composition Scale | Model Name ： | CS20M |
| Temperature： | 26 ℃ | Relative Humidity： | 53% |
| Pressure： | 1020 hPa | Test Power ： | DC 4.5V |
| Test Mode ： | TX(2402MHz/2440MHz/2480MHz) | | |

| Test Frequency (MHz) | 20 dBc Bandwidth (MHz) |
|---|---|
| 2402 | 1.166 |
| 2440 | 1.257 |
| 2480 | 1.203 |

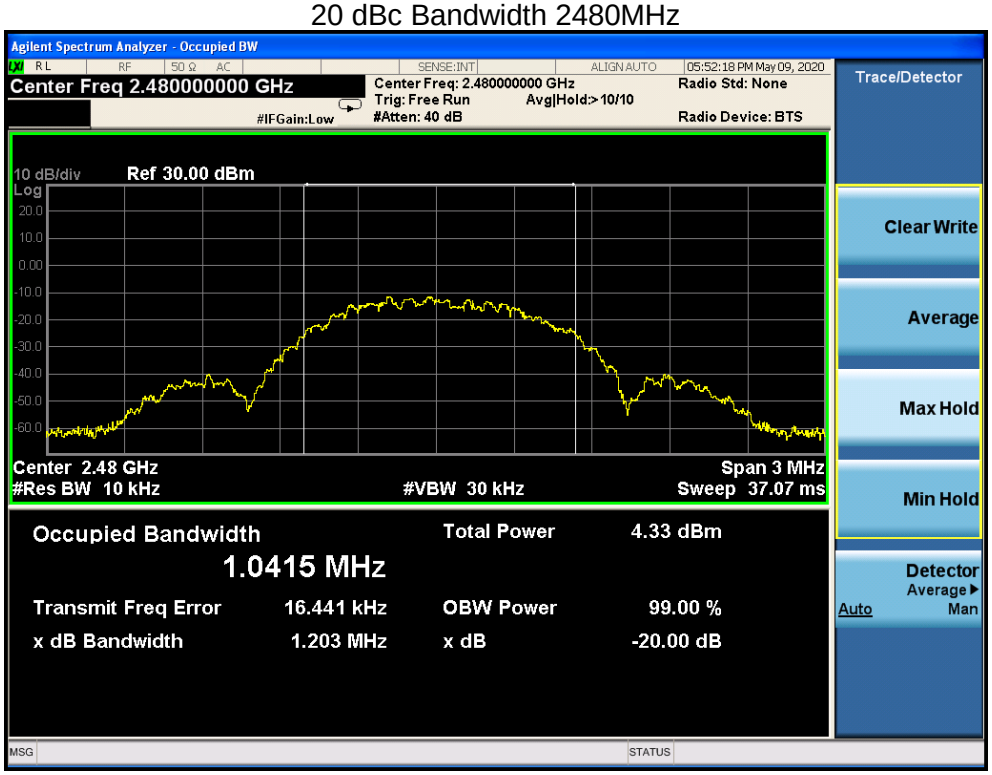
2402 MHz



20 dBc Bandwidth 2440MHz




20 dBc Bandwidth 2480MHz




END OF REPORT