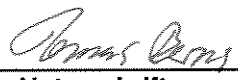


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                   |                                                                                                         |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Prüfbericht - Nr.:</b> 14010504 001                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                   | <b>Seite 1 von 13</b>                                                                                   |                                                                                       |
| Test Report No.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                   | Page 1 of 13                                                                                            |                                                                                       |
| <b>Auftraggeber:</b><br>Applicant                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>SAGEM COMMUNICATION</b><br>2 Rue du petit Albi<br>95 800 Cergy St Christophe<br>Cedex - France                                                                                                                                 |                                                                                                         |                                                                                       |
| <b>Gegenstand der Prüfung:</b><br>Test item                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>SAGEM OTE BT Headset</b>                                                                                                                                                                                                       |                                                                                                         |                                                                                       |
| <b>Bezeichnung:</b><br>Identification                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>189033747</b>                                                                                                                                                                                                                  | <b>Serien-Nr.:</b><br>Serial No.                                                                        | <b>Engineering sample</b>                                                             |
| <b>Wareneingangs-Nr.:</b><br>Receipt No.                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>050826052, 050914042</b>                                                                                                                                                                                                       | <b>Eingangsdatum:</b><br>Date of receipt                                                                | <b>26.08.2005, 14.09.2005</b>                                                         |
| <b>Prüfört:</b><br>Testing location                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>TÜV Rheinland Hong Kong Ltd.</b><br>Room 8, 25th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay<br>Kowloon, Hong Kong<br><b>Hong Kong Productivity Council</b><br>HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong |                                                                                                         |                                                                                       |
| <b>Prüfgrundlage:</b><br>Test specification                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>FCC Part 15 Subpart C</b><br><b>ANSI C63.4-2003</b><br><b>CISPR 22:1997</b>                                                                                                                                                    |                                                                                                         |                                                                                       |
| <b>Prüfergebnis:</b><br>Test Result                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage.</b><br>The above mentioned product was tested and <b>passed</b> .                                                                 |                                                                                                         |                                                                                       |
| <b>geprüft / tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                   | <b>kontrolliert / reviewed by:</b>                                                                      |                                                                                       |
| 20.09.2005                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fred Wai                                                                                                                                                                                                                          | 20.09.2005                                                                                              | Thomas Berns                                                                          |
| <b>Datum</b><br>Date                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Name</b><br>Name                                                                                                                                                                                                               | <b>Datum</b><br>Date                                                                                    | <b>Name</b><br>Name                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                |                                                                                                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Unterschrift</b><br>Signature                                                                                                                                                                                                  |                                                                                                         | <b>Unterschrift</b><br>Signature                                                      |
| <b>Sonstiges:</b><br>Other Aspects                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                   | <b>FCCID: M9H189033747</b>                                                                              |                                                                                       |
| <b>Abkürzungen:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OK, Pass, P<br>Fail, F<br>N/A<br>NT                                                                                                                                                                                               | = entspricht Prüfgrundlage<br>= entspricht nicht Prüfgrundlage<br>= nicht anwendbar<br>= nicht getestet | <b>Abbreviations:</b><br>OK, Pass, P<br>Fail, F<br>N/A<br>NT                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                   |                                                                                                         | = passed<br>= failed<br>= not applicable<br>= not tested                              |
| <b>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.</b><br>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products. |                                                                                                                                                                                                                                   |                                                                                                         |                                                                                       |

## Table of Content

|                                                            | Page            |
|------------------------------------------------------------|-----------------|
| <b>Cover Page .....</b>                                    | <b>1</b>        |
| <b>Table of Content .....</b>                              | <b>2</b>        |
| <b>Product information.....</b>                            | <b>3</b>        |
| Manufacturers declarations .....                           | 3               |
| Product function and intended use.....                     | 3               |
| Submitted documents .....                                  | 3               |
| Special accessories and auxiliary equipment.....           | 4               |
| <b>List of Test and Measurement Instruments.....</b>       | <b>5</b>        |
| <b>Result FCC Part 15 – Subpart C .....</b>                | <b>6</b>        |
| Subclause 15.203 – Antenna Information.....                | Pass..... 6     |
| Subclause 15.204 – Antenna Information.....                | Pass..... 6     |
| Subclause 15.207 – Disturbance Voltage on AC Mains .....   | Pass..... 6     |
| Subclause 15.247 (a) – Carrier Frequency Separation.....   | Pass..... 7     |
| Subclause 15.247 (a) – Time of Occupancy (Dwell Time)..... | Pass..... 8     |
| Subclause 15.247 (a) – 20 dB Bandwidth .....               | Pass..... 9     |
| Subclause 15.247 (a) – Hopping Sequence.....               | Pass..... 9     |
| Subclause 15.247 (a) – Equal Hopping Frequency Use .....   | Pass..... 10    |
| Subclause 15.247 (a) – Receiver Input Bandwidth .....      | Pass..... 11    |
| Subclause 15.247 (a) – Receiver Hopping Capability.....    | Pass..... 11    |
| Subclause 15.247 (b) – Peak Output Power .....             | Pass..... 11    |
| Subclause 15.247 (b) – Band edge compliance .....          | Pass..... 12    |
| Subclause 15.247 (c) – Spurious Conducted Emissions.....   | Pass..... 12    |
| Subclause 15.247 (c) – Spurious Radiated Emissions.....    | Pass..... 13    |
| <b>Appendix 1 – Test protocols .....</b>                   | <b>26 pages</b> |
| <b>Appendix 2 – Test setup .....</b>                       | <b>4 pages</b>  |
| <b>Appendix 3 – Photo documentation .....</b>              | <b>9 pages</b>  |
| <b>Appendix 4 – Product documentation .....</b>            | <b>27 pages</b> |

## Product information

### Manufacturers declarations

|                                         | Transmitter              | Receiver                 |
|-----------------------------------------|--------------------------|--------------------------|
| Operating frequency range               | 2402 - 2480 MHz          | 2402 - 2480 MHz          |
| Type of modulation                      | FHSS modulation          | FHSS modulation          |
| Number of channels                      | 79                       | 79                       |
| Channel separation                      | 1 MHz                    | 1 MHz                    |
| Type of antenna                         | On-board Chip Antenna    | On-board Chip Antenna    |
| Antenna gain (dBi)                      | 1.2                      | 1.2                      |
| Power level                             | fix                      | fix                      |
| Type of equipment                       | stand alone device       | stand alone device       |
| Connection to public utility power line | No                       |                          |
| Nominal voltage                         | V <sub>nor</sub> : 3.7 V | V <sub>nor</sub> : 3.7 V |
| Independent Operation Modes             | Standby                  | Standby                  |

### Product function and intended use

The test item is a Bluetooth Headset based on the Bluetooth technology.

Bluetooth is a short-range radio link intended to be a cable replacement between portable and/or fixed electronic devices.

Bluetooth operates in the unlicensed ISM Band at 2.4 GHz. In the US a band of 83.5 MHz width is available. In this band, 79 RF channels spaced 1 MHz apart are defined.

The channel is represented by a pseudo-random hopping sequence through the 79 channels. The channel is divided into time slots, with a nominal slot length of 625 µs, where each slot corresponds to different RF hop frequencies. The nominal hop rate is 1600 hops/s. The symbol rate on the channel is 1 Ms/s.

### Submitted documents

Circuit Diagram  
Block Diagram  
Bill of material  
User manual

## Special accessories and auxiliary equipment

The product has been tested together with the following additional accessory:

1. Model Name: My X : CHARGEUR / DC ADAPTOR: BT  
Model Number: 189063068
2. Model Name: My C: CHARGEUR / DC ADAPTOR: BT  
Model Number: 189063047

N.B My X and My C adaptor are identical adaptor, only difference is the port connected to the mobile. For the test Voltage Disturbance on AC main, the adaptor My X will be test with the reference charger

3. Reference Charger (N.B it is not sale within the package)

SAGEM 185982340  
Input: 120VAC / 60 Hz/ 60 mA/ 6.6VA  
Output: 4.5V - /400mA  
Model No: DTC3515 045E040U

## List of Test and Measurement Instruments

|                                     | Kind of Equipment               | Manufacturer      | Type                | S/N          |
|-------------------------------------|---------------------------------|-------------------|---------------------|--------------|
| <input type="checkbox"/>            | Test Receiver                   | Rohde & Schwarz   | ESH-3               | 890173/033   |
| <input type="checkbox"/>            | L/I/S/N                         | Rohde & Schwarz   | ESH 3-Z5            | 849876/026   |
| <input type="checkbox"/>            | Oscilloscope                    | HP                | 54713B              | US34510455   |
| <input type="checkbox"/>            | Test Receiver                   | Rohde & Schwarz   | ESVP                | 882402/033   |
| <input type="checkbox"/>            | Absorbing Clamp                 | Rohde & Schwarz   | MDS-21              | 979 3/4      |
| <input type="checkbox"/>            | Test Receiver                   | Rohde & Schwarz   | ESVS30              | 842807/009   |
| <input type="checkbox"/>            | Biconical Antenna               | Rohde & Schwarz   | HK116               | 841489/015   |
| <input type="checkbox"/>            | Log.-Periodic Antenna           | Rohde & Schwarz   | HL223               | 841516/017   |
| <input type="checkbox"/>            | Universal Power Analyzer        | Voltech           | PM3000A             | 9915         |
| <input type="checkbox"/>            | Reference Impedance Network     | Voltech           | IEC 555<br>Standard | 9946         |
| <input type="checkbox"/>            | AC Power Source                 | California Instr. | 4500L               | HK51895      |
| <input type="checkbox"/>            | Trip-Loop Antenna               | Chase             | LLA6142             | 1019         |
| <input type="checkbox"/>            | Double Ridge Horn Antenna       | EMCO              | 3115                | 9002-3351    |
| <input checked="" type="checkbox"/> | Double Ridge Horn Antenna       | EMCO              | 3115                | 9002-3347    |
| <input type="checkbox"/>            | RF Comms Test Set               | HP                | 8920B               | US36492628   |
| <input type="checkbox"/>            | Spectrum Analyser + Tracking G. | HP                | 8596E               | 3639A00758   |
| <input type="checkbox"/>            | Signal Generator                | Rohde & Schwarz   | SMY 01              | 844146/024   |
| <input type="checkbox"/>            | Signal Generator                | Rohde & Schwarz   | SMY 01              | 844146/023   |
| <input type="checkbox"/>            | BiLog Antenna                   | EMCO              | 3143                | 9607-1287    |
| <input type="checkbox"/>            | Isotropic Field Probe           | Holladay          | HI-4422             | 90956        |
| <input type="checkbox"/>            | Power Amplifier                 | Kalmus            | 757-LC              | 7620-1       |
| <input type="checkbox"/>            | Power Amplifier                 | Kalmus            | 122-FC              | 7620-2       |
| <input type="checkbox"/>            | Coupling Clamp                  | Schaffner         | CDN 126             | 312          |
| <input type="checkbox"/>            | Couple Device Network           | Fischer           | CDN-M2              | 9604         |
| <input checked="" type="checkbox"/> | Spectrum Analyzer               | Rohde & Schwarz   | FSP30               | 1093.4495K30 |
| <input type="checkbox"/>            | Temperature Chamber             | Binder            | MK 240              | 9020-0028    |
| <input type="checkbox"/>            | EFT,ESD,SURGE, DIPS tester      | Schaffner         | Best 96             | IN3796-011   |
| <input type="checkbox"/>            | Surge Generator                 | Schaffner         | NSG650              | 280          |

## Result FCC Part 15 – Subpart C

| Subclause 15.203 – Antenna Information |                                                                                             | Pass |
|----------------------------------------|---------------------------------------------------------------------------------------------|------|
| <b>Requirement:</b>                    | No antenna other than that furnished by the responsible party shall be used with the device |      |
| <b>Result:</b>                         | Permanent attached antenna                                                                  |      |
| <b>Verdict:</b>                        | Pass                                                                                        |      |

| Subclause 15.204 – Antenna Information |                                                                                                                                                                        | Pass |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>Requirement:</b>                    | Provide information for every antenna proposed for the use with the EUT                                                                                                |      |
| <b>Result:</b>                         | a) Antenna type: On board chip antenna soldered to the circuit board<br>b) Manufacturer and model no: N.A.<br>c) Gain with reference to an isotropic radiator: 1.2 dBi |      |
| <b>Verdict:</b>                        | Pass                                                                                                                                                                   |      |

| Subclause 15.207 – Disturbance Voltage on AC Mains                                                                                                                                                                                             |                 |                 |              |                 |                 | Pass    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|--------------|-----------------|-----------------|---------|
| My X : CHARGEUR / DC ADAPTOR: BT<br>Test Port: AC mains input port of the charger<br>Applied voltage: 110VAC<br>Applicable only to equipment designed to be connected to the public utility power line.<br>1) Mode of operation: Charging only |                 |                 |              |                 |                 |         |
| <b>Live measurement</b>                                                                                                                                                                                                                        |                 |                 |              |                 |                 |         |
| Frequency range (MHz)                                                                                                                                                                                                                          | Frequency (MHz) | Quasi-peak dBµV | Average dBµV | Limit QP (dBµV) | Limit AV (dBµV) | Verdict |
| 0,15 – 0,5                                                                                                                                                                                                                                     | 0.150000        | 36.8            | 29.0         | 66 - 56         | 56 - 46         | Pass    |
| > 0,5 - 5                                                                                                                                                                                                                                      | 0.510000        | 35.5            | 23.9         | 56              | 46              | Pass    |
| > 0,5 - 5                                                                                                                                                                                                                                      | 0.714000        | 36.4            | 24.7         | 56              | 46              | Pass    |
| > 0,5 - 5                                                                                                                                                                                                                                      | 1.379270        | 41.5            | 29.8         | 56              | 46              | Pass    |
| <b>Neutral measurement</b>                                                                                                                                                                                                                     |                 |                 |              |                 |                 |         |
| Frequency range (MHz)                                                                                                                                                                                                                          | Frequency (MHz) | Quasi-peak dBµV | Average dBµV | Limit QP (dBµV) | Limit AV (dBµV) | Verdict |
| 0,15 – 0,5                                                                                                                                                                                                                                     | 0.150000        | 37.9            | 28.4         | 66 - 56         | 56 - 46         | Pass    |
| 0,15 – 0,5                                                                                                                                                                                                                                     | 0.202080        | 30.8            | 21.0         | 66 - 56         | 56 - 46         | Pass    |
| > 0,5 - 5                                                                                                                                                                                                                                      | 1.346810        | 37.0            | 17.0         | 56              | 46              | Pass    |
| > 0,5 - 5                                                                                                                                                                                                                                      | 1.492080        | 34.9            | 15.2         | 56              | 46              | Pass    |

**Result:** The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz does not exceed the limits. For test results plots refer to Appendix 1, page 2-4.

**Subclause 15.247 (a) – Carrier Frequency Separation****Pass**

**Requirement:** Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

Test Specification : FCC Part 15 Subpart A – Subclause 15.31  
Mode of operation : Tx mode (hopping on), DH1 packet  
Port of testing : Temporary antenna port  
Detector : Peak  
RBW/VBW : 100 kHz / 300 kHz  
Supply voltage : 3.7VDC from Lithium Battery  
Temperature : 23°C  
Humidity : 50%

**Result:** The centre frequencies of the hopping channels are separated by more than the 20dB bandwidth. For test results plots refer to Appendix 1, page 2.

**Verdict:** Pass

| Subclause 15.247 (a) – Time of Occupancy (Dwell Time)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pass |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <b>Requirement:</b> Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.                                                                                                                                                                                                                                                                                                                                                        |      |
| Test Specification : FCC Part 15 Subpart A – Subclause 15.31<br>Mode of operation : Tx mode (hopping on), DH5 packet<br>Port of testing : Temporary antenna port<br>Detector : Peak<br>RBW/VBW : 1 MHz / 3 MHz<br>Supply voltage : 3.7VDC from Lithium Battery<br>Temperature : 23°C<br>Humidity : 50%                                                                                                                                                                                                                                                                                                                                                      |      |
| <b>Result:</b> The screenshot in Appendix 1 page 4 shows the occurrence of a channel in a 31.6 s time period. In normal hopping mode Bluetooth is using 79 hopping channels only. The frequency was used 64 times. The dwell time for the longest supported packet type is about 3 ms. As a result the average time of occupancy will not be greater than 400 ms.<br><br>i.e. Time period calculation:<br>$0.4 \times 79 = 31.6\text{s}$<br><br>Limit calculation:<br>$64 \times 2.92 \times 10^{-3} = 186.9 \times 10^{-3}$<br>$\leq 400 \times 10^{-3} \text{ s}$<br><br>For test protocols please refer to Appendix 1, page 3-4.<br><b>Verdict:</b> Pass |      |

**Subclause 15.247 (a) – 20 dB Bandwidth****Pass**

Requirement: Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

Test Specification : FCC Part 15 Subpart A – Subclause 15.31  
 Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH5 packet  
 Port of testing : Temporary antenna port  
 Detector : Peak  
 RBW/VBW : 30 kHz / 100 kHz  
 Supply voltage : 3.7VDC from Lithium Battery  
 Temperature : 23°C  
 Humidity : 50%

**Results**

For test protocols refer to Appendix 1, page 5-7.

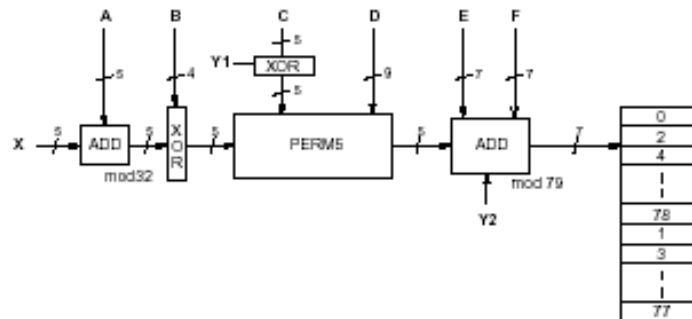
| Frequency (MHz) | 20 dB left (MHz) | 20 dB right (MHz) | 20dB bandwidth (MHz) |
|-----------------|------------------|-------------------|----------------------|
| 2402            | 468.0            | 456.0             | 924                  |
| 2441            | 468.0            | 452.0             | 920                  |
| 2480            | 460.0            | 468.0             | 928                  |

**Subclause 15.247 (a) – Hopping Sequence****Pass**

Requirement: The hopping sequence is generated and provided with an example.

**Hopping sequence**

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master. The X input determines the phase in the 32-hop segment, whereas Y1 and Y2 selects between master-to-slave and slave-to-master transmission. The inputs A to D determine the ordering within the segment, the inputs E and F determine the mapping onto the hop frequencies.



**Example data:**

Hop sequence {k} for CONNECTION STATE:

CLK start: 0x0000010

ULAP: 0x00000000

#ticks: 00 02 | 04 06 | 08 0a | 0c 0e | 10 12 | 14 16 | 18 1a | 1c 1e |

```

0x0000010: 08 66 | 10 70 | 12 19 | 14 23 | 16 01 | 18 05 | 20 33 | 22 37 |
0x0000030: 24 03 | 26 07 | 28 35 | 30 39 | 32 72 | 34 76 | 36 25 | 38 29 |
0x0000050: 40 74 | 42 78 | 44 27 | 46 31 | 48 09 | 50 13 | 52 41 | 54 45 |
0x0000070: 56 11 | 58 15 | 60 43 | 62 47 | 32 17 | 36 19 | 34 49 | 38 51 |
0x0000090: 40 21 | 44 23 | 42 53 | 46 55 | 48 33 | 52 35 | 50 65 | 54 67 |
0x00000b0: 56 37 | 60 39 | 58 69 | 62 71 | 64 25 | 68 27 | 66 57 | 70 59 |
0x00000d0: 72 29 | 76 31 | 74 61 | 78 63 | 01 41 | 05 43 | 03 73 | 07 75 |
0x00000f0: 09 45 | 13 47 | 11 77 | 15 00 | 64 49 | 66 53 | 68 02 | 70 06 |
0x0000110: 01 51 | 03 55 | 05 04 | 07 08 | 72 57 | 74 61 | 76 10 | 78 14 |
0x0000130: 09 59 | 11 63 | 13 12 | 15 16 | 17 65 | 19 69 | 21 18 | 23 22 |
0x0000150: 33 67 | 35 71 | 37 20 | 39 24 | 25 73 | 27 77 | 29 26 | 31 30 |
0x0000170: 41 75 | 43 00 | 45 28 | 47 32 | 17 02 | 21 04 | 19 34 | 23 36 |
0x0000190: 33 06 | 37 08 | 35 38 | 39 40 | 25 10 | 29 12 | 27 42 | 31 44 |
0x00001b0: 41 14 | 45 16 | 43 46 | 47 48 | 49 18 | 53 20 | 51 50 | 55 52 |
0x00001d0: 65 22 | 69 24 | 67 54 | 71 56 | 57 26 | 61 28 | 59 58 | 63 60 |
0x00001f0: 73 30 | 77 32 | 75 62 | 00 64 | 49 34 | 51 42 | 57 66 | 59 74 |
0x0000210: 53 36 | 55 44 | 61 68 | 63 76 | 65 50 | 67 58 | 73 03 | 75 11 |
0x0000230: 69 52 | 71 60 | 77 05 | 00 13 | 02 38 | 04 46 | 10 70 | 12 78 |
0x0000250: 06 40 | 08 48 | 14 72 | 16 01 | 18 54 | 20 62 | 26 07 | 28 15 |
0x0000270: 22 56 | 24 64 | 30 09 | 32 17 | 02 66 | 06 74 | 10 19 | 14 27 |
0x0000290: 04 70 | 08 78 | 12 23 | 16 31 | 18 03 | 22 11 | 26 35 | 30 43 |
0x00002b0: 20 07 | 24 15 | 28 39 | 32 47 | 34 68 | 38 76 | 42 21 | 46 29 |
0x00002d0: 36 72 | 40 01 | 44 25 | 48 33 | 50 05 | 54 13 | 58 37 | 62 45 |
0x00002f0: 52 09 | 56 17 | 60 41 | 64 49 | 34 19 | 36 35 | 50 51 | 52 67 |
0x0000310: 38 21 | 40 37 | 54 53 | 56 69 | 42 27 | 44 43 | 58 59 | 60 75 |
0x0000330: 46 29 | 48 45 | 62 61 | 64 77 | 66 23 | 68 39 | 03 55 | 05 71 |
0x0000350: 70 25 | 72 41 | 07 57 | 09 73 | 74 31 | 76 47 | 11 63 | 13 00 |
0x0000370: 78 33 | 01 49 | 15 65 | 17 02 | 66 51 | 70 67 | 03 04 | 07 20 |
0x0000390: 68 55 | 72 71 | 05 08 | 09 24 | 74 59 | 78 75 | 11 12 | 15 28 |
0x00003b0: 76 63 | 01 00 | 13 16 | 17 32 | 19 53 | 23 69 | 35 06 | 39 22 |
0x00003d0: 21 57 | 25 73 | 37 10 | 41 26 | 27 61 | 31 77 | 43 14 | 47 30 |
0x00003f0: 29 65 | 33 02 | 45 18 | 49 34 | 19 04 | 21 08 | 23 20 | 25 24 |

```

**Subclause 15.247 (a) – Equal Hopping Frequency Use****Pass**

Requirement: Each of the transmitter's hopping channels is used equally on average.

Equal hopping frequency use

The EUT complies with the Bluetooth RF specifications. For details refer to the Bluetooth standard.

| Subclause 15.247 (a) – Receiver Input Bandwidth                                                                                                                                        |                                                                                                                                    | Pass |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------|
| Requirement:                                                                                                                                                                           | The associated receiver(s) complies with the requirement that its input bandwidth matches the bandwidth of the transmitted signal. |      |
| Receiver input bandwidth                                                                                                                                                               |                                                                                                                                    |      |
| The receiver bandwidth is equal to the receiver bandwidth in the 79 hopping channel mode, which is 1 MHz. The receiver bandwidth was verified during Bluetooth RF conformance testing. |                                                                                                                                    |      |

| Subclause 15.247 (a) – Receiver Hopping Capability                                                  |                                                                                                               | Pass |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------|
| Requirement:                                                                                        | The associated receiver has the ability to shift frequencies in synchronisation with the transmitted signals. |      |
| Receiver hopping Capability                                                                         |                                                                                                               |      |
| The EUT complies with the Bluetooth RF specifications. For details refer to the Bluetooth standard. |                                                                                                               |      |

| Subclause 15.247 (b) – Peak Output Power                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                      | Pass                   |                    |               |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|---------------|---------|
| Test Specification : FCC Part 15 Subpart A – Subclause 15.31<br>Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet<br>Port of testing : Temporary antenna port<br>Detector : Peak<br>RBW/VBW : 1 MHz / 3 MHz<br>Supply voltage : 3.7VDC from Lithium Battery<br>Temperature : 23°C<br>Humidity : 50% |                                                                                                                                                                                                                                                                      |                        |                    |               |         |
| Requirement:                                                                                                                                                                                                                                                                                                          | For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 Watt. For all other frequency hopping systems in the 2400 – 2483.5 MHz band: 0.125 Watts. |                        |                    |               |         |
| <b>Result</b><br>All three transmit frequency modes comply with the maximum peak output power limit.<br>For test protocols please refer to Appendix 1, page 8-10.                                                                                                                                                     |                                                                                                                                                                                                                                                                      |                        |                    |               |         |
| Frequency (MHz)                                                                                                                                                                                                                                                                                                       | Maximum peak output power (dBm)                                                                                                                                                                                                                                      | Cable attenuation (dB) | Output power (dBm) | Limit (W/dBm) | Verdict |
| 2402                                                                                                                                                                                                                                                                                                                  | -0.71                                                                                                                                                                                                                                                                | 3.52                   | 2.81               | 1 / 30.0      | Pass    |
| 2441                                                                                                                                                                                                                                                                                                                  | -0.76                                                                                                                                                                                                                                                                | 3.65                   | 2.89               | 1 / 30.0      | Pass    |
| 2480                                                                                                                                                                                                                                                                                                                  | -0.79                                                                                                                                                                                                                                                                | 3.60                   | 2.81               | 1 / 30.0      | Pass    |

| Subclause 15.247 (b) – Band edge compliance                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                | Pass |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Test Specification : FCC Part 15 Subpart A – Subclause 15.31<br>Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet<br>Port of testing : Temporary antenna port<br>Detector : Peak<br>RBW/VBW : 300 kHz / 1 MHz<br>Supply voltage : 3.7VDC from Lithium Battery<br>Temperature : 23°C<br>Humidity : 50% |                                                                                                                                                                                                                                                                                                                                                                                                                |      |
| Requirement:                                                                                                                                                                                                                                                                                                            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |      |
| <b>Result</b><br><br>There is no peak found outside any 100 kHz bandwidth of the operating frequency band in the three transmit frequency. All three transmit frequency modes comply with the limit stated in subclause 15.247(c).<br><br>For test protocols refer to Appendix 1, page 11-13.                           |                                                                                                                                                                                                                                                                                                                                                                                                                |      |

| Subclause 15.247 (c) – Spurious Conducted Emissions                                                                                                                                                                                                                                                                                                                                                                         |                          |                      | Pass                  |            |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------|-----------------------|------------|---------|
| Test Specification : FCC Part 15 Subpart A – Subclause 15.31<br>Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet<br>Port of testing : Temporary antenna port<br>Detector : Peak<br>RBW/VBW : 100 kHz / 300 kHz<br>Supply voltage : 3.7VDC from Lithium Battery<br>Temperature : 23 °C<br>Humidity : 50 %                                                                                                 |                          |                      |                       |            |         |
| Requirement: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |                          |                      |                       |            |         |
| Result<br><br>There is no peak found outside any 100kHz bandwidth of the operating frequency band in the three transmit frequency. All three transmit frequency modes comply with the limit stated in subclause 15.247(c).<br><br>For test protocols refer to Appendix 1, page 14-20.                                                                                                                                       |                          |                      |                       |            |         |
| Operating frequency (MHz)                                                                                                                                                                                                                                                                                                                                                                                                   | Spurious frequency (MHz) | Spurious Level (dBm) | Reference value (dBm) | Delta (dB) | Verdict |
| 2402                                                                                                                                                                                                                                                                                                                                                                                                                        | No Peak Found            | -                    | -                     | -          | Pass    |
| 2441                                                                                                                                                                                                                                                                                                                                                                                                                        | No Peak Found            | -                    | -                     | -          | Pass    |
| 2480                                                                                                                                                                                                                                                                                                                                                                                                                        | No Peak Found            | -                    | -                     | -          | Pass    |

| Subclause 15.247 (c) – Spurious Radiated Emissions                                                                                                                                                                                                                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                         |                   | Pass            |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|-------------------|-----------------|------------------------------|
| Test Specification : ANSI C63.4 - 2003<br>Mode of operation : Tx mode (2402MHz, 2441MHz, 2480MHz), DH1 packet<br>Port of testing : Enclosure<br>Detector : Peak<br>RBW/VBW : 100 kHz / 300 kHz for f < 1 GHz<br>1 MHz / 3 MHz for f > 1 GHz<br>Supply voltage : 3.7VDC from Lithium Battery<br>Temperature : 23°C<br>Humidity : 50% |                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                         |                   |                 |                              |
| Requirement:                                                                                                                                                                                                                                                                                                                        |                 | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. |                  |                         |                   |                 |                              |
| <b>Result</b><br>All three transmit frequency modes comply with the field strength within the restricted bands.<br>For test protocols refer to Appendix 1, page 21-68.                                                                                                                                                              |                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                         |                   |                 |                              |
| Tx frequency 2402MHz                                                                                                                                                                                                                                                                                                                |                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                  | Vertical Polarization   |                   |                 |                              |
| Freq<br>MHz                                                                                                                                                                                                                                                                                                                         | Reading<br>dBuV | AF<br>dB(1/m)                                                                                                                                                                                                                                                                                                                                                                                                  | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 474.26                                                                                                                                                                                                                                                                                                                              | 26.4            | 17.20                                                                                                                                                                                                                                                                                                                                                                                                          | 2.00             | -                       | -                 | 7.90            | 43.5 / QP                    |
| 1601.98                                                                                                                                                                                                                                                                                                                             | 45.16           | 25.40                                                                                                                                                                                                                                                                                                                                                                                                          | 1.89             | 36.17                   | 0.60              | 53.44           | 74.0 / P                     |
| 1601.98                                                                                                                                                                                                                                                                                                                             | 44.24           | 25.40                                                                                                                                                                                                                                                                                                                                                                                                          | 1.89             | 36.17                   | 0.60              | 52.52           | 54.0 / A                     |
| 4804.02                                                                                                                                                                                                                                                                                                                             | 54.68           | 33.40                                                                                                                                                                                                                                                                                                                                                                                                          | 3.53             | 32.87                   | 0.33              | 50.29           | 74.0 / P                     |
| 4803.96                                                                                                                                                                                                                                                                                                                             | 45.49           | 33.40                                                                                                                                                                                                                                                                                                                                                                                                          | 3.53             | 32.87                   | 0.33              | 41.10           | 54.0 / A                     |
| Tx frequency 2402MHz                                                                                                                                                                                                                                                                                                                |                 |                                                                                                                                                                                                                                                                                                                                                                                                                |                  | Horizontal Polarization |                   |                 |                              |
| Freq<br>MHz                                                                                                                                                                                                                                                                                                                         | Reading<br>dBuV | AF<br>dB(1/m)                                                                                                                                                                                                                                                                                                                                                                                                  | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 1602.06                                                                                                                                                                                                                                                                                                                             | 42.36           | 25.40                                                                                                                                                                                                                                                                                                                                                                                                          | 1.89             | 36.17                   | 0.60              | 50.64           | 74.0 / P                     |
| 1602.06                                                                                                                                                                                                                                                                                                                             | 44.16           | 25.40                                                                                                                                                                                                                                                                                                                                                                                                          | 1.89             | 36.17                   | 0.60              | 52.44           | 54.0 / A                     |
| 4803.96                                                                                                                                                                                                                                                                                                                             | 49.55           | 33.40                                                                                                                                                                                                                                                                                                                                                                                                          | 3.53             | 32.87                   | 0.33              | 45.16           | 74.0 / P                     |
| 4803.88                                                                                                                                                                                                                                                                                                                             | 40.25           | 33.40                                                                                                                                                                                                                                                                                                                                                                                                          | 3.53             | 32.87                   | 0.33              | 35.86           | 54.0 / A                     |

| Tx frequency 2441MHz |                 |               |                  | Vertical Polarization   |                   |                 |                              |
|----------------------|-----------------|---------------|------------------|-------------------------|-------------------|-----------------|------------------------------|
| Freq<br>MHz          | Reading<br>dBuV | AF<br>dB(1/m) | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 445.32               | 32.0            | 16.80         | 1.90             | -                       | -                 | 13.30           | 43.5 / QP                    |
| 1627.98              | 44.07           | 25.40         | 1.89             | 36.17                   | 0.60              | 52.35           | 74.0 / P                     |
| 1627.94              | 43.13           | 25.40         | 1.89             | 36.17                   | 0.60              | 51.41           | 54.0 / A                     |
| 4881.98              | 56.85           | 33.40         | 3.53             | 32.87                   | 0.33              | 52.46           | 74.0 / P                     |
| 4882.14              | 49.64           | 33.40         | 3.53             | 32.87                   | 0.33              | 45.25           | 54.0 / A                     |
| Tx frequency 2441MHz |                 |               |                  | Horizontal Polarization |                   |                 |                              |
| Freq<br>MHz          | Reading<br>dBuV | AF<br>dB(1/m) | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 438.656              | 33.2            | 16.60         | 1.90             | -                       | -                 | 14.70           | 43.5 / QP                    |
| 1627.92              | 42.22           | 25.40         | 1.89             | 36.17                   | 0.60              | 50.50           | 74.0 / P                     |
| 1628.02              | 41.00           | 25.40         | 1.89             | 36.17                   | 0.60              | 49.28           | 54.0 / A                     |
| 4881.96              | 51.09           | 33.40         | 3.53             | 32.87                   | 0.33              | 46.70           | 74.0 / P                     |
| 4881.88              | 44.81           | 33.40         | 3.53             | 32.87                   | 0.33              | 40.42           | 54.0 / A                     |
| Tx frequency 2480MHz |                 |               |                  | Vertical Polarization   |                   |                 |                              |
| Freq<br>MHz          | Reading<br>dBuV | AF<br>dB(1/m) | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 448.016              | 32.2            | 16.80         | 1.90             | -                       | -                 | 13.50           | 43.5 / QP                    |
| 1654.10              | 44.84           | 25.40         | 1.89             | 36.17                   | 0.60              | 53.12           | 74.0 / P                     |
| 1653.98              | 44.01           | 25.40         | 1.89             | 36.17                   | 0.60              | 52.29           | 54.0 / A                     |
| 4959.96              | 57.28           | 33.40         | 3.53             | 32.87                   | 0.33              | 52.89           | 74.0 / P                     |
| 4960.00              | 52.32           | 33.40         | 3.53             | 32.87                   | 0.33              | 47.93           | 54.0 / A                     |
| Tx frequency 2480MHz |                 |               |                  | Horizontal Polarization |                   |                 |                              |
| Freq<br>MHz          | Reading<br>dBuV | AF<br>dB(1/m) | Cable att.<br>dB | Pre-amp<br>dB           | Filter att.<br>dB | Level<br>dBuV/m | Limit/<br>Detector<br>dBuV/m |
| 438.668              | 32.6            | 16.60         | 1.90             | -                       | -                 | 14.10           | 43.5 / QP                    |
| 1653.94              | 44.77           | 25.40         | 1.89             | 36.17                   | 0.60              | 53.05           | 74.0 / P                     |
| 1653.98              | 44.04           | 25.40         | 1.89             | 36.17                   | 0.60              | 53.32           | 54.0 / A                     |
| 4960.06              | 51.59           | 33.40         | 3.53             | 32.87                   | 0.33              | 47.20           | 74.0 / P                     |
| 4960.08              | 46.55           | 33.40         | 3.53             | 32.87                   | 0.33              | 42.16           | 54.0 / A                     |

# Appendix 1

## Test results

## Disturbance Voltage on AC Mains

Date: 21 Sept 2005

EUT: SAGEM OTE BT Headset

Charger: My X : CHARGEUR / DC ADAPTOR: BT

Company: SAGEM COMMUNICATION

Humidity: 50%

Temperature: 23°C

Voltage supply: 3.7VDC from Lithium Battery

Test by: Sharon Li

Op. mode: Charging

### Live measurement

| Frequency (MHz) | QP reading (dB $\mu$ V) | Av reading (dB $\mu$ V) | Results |
|-----------------|-------------------------|-------------------------|---------|
| 0.150000        | 36.8                    | 29.0                    | Pass    |
| 0.510000        | 35.5                    | 23.9                    | Pass    |
| 0.714000        | 36.4                    | 24.7                    | Pass    |
| 1.379270        | 41.5                    | 29.8                    | Pass    |

### Neutral measurement

| Frequency (MHz) | QP reading (dB $\mu$ V) | Av reading (dB $\mu$ V) | Results |
|-----------------|-------------------------|-------------------------|---------|
| 0.150000        | 37.9                    | 28.4                    | Pass    |
| 0.202080        | 30.8                    | 21.0                    | Pass    |
| 1.346810        | 37.0                    | 17.0                    | Pass    |
| 1.492080        | 34.9                    | 15.2                    | Pass    |

## Carrier Frequency Separation

Date: 21 Sept 2005  
 EUT: SAGEM OTE BT Headset  
 Company: SAGEM COMMUNICATION  
 Humidity: 50%  
 Temperature: 23°C  
 Voltage supply: 3.7VDC from Lithium Battery  
 Test by: Sharon Li  
 Op. mode: Hopping on

Reference frequency (MHz)  
 2441.000

Channel Separation (MHz)  
 1.026



**DELTA MARKER 3**

1.026 MHz

Ref 20 dBm

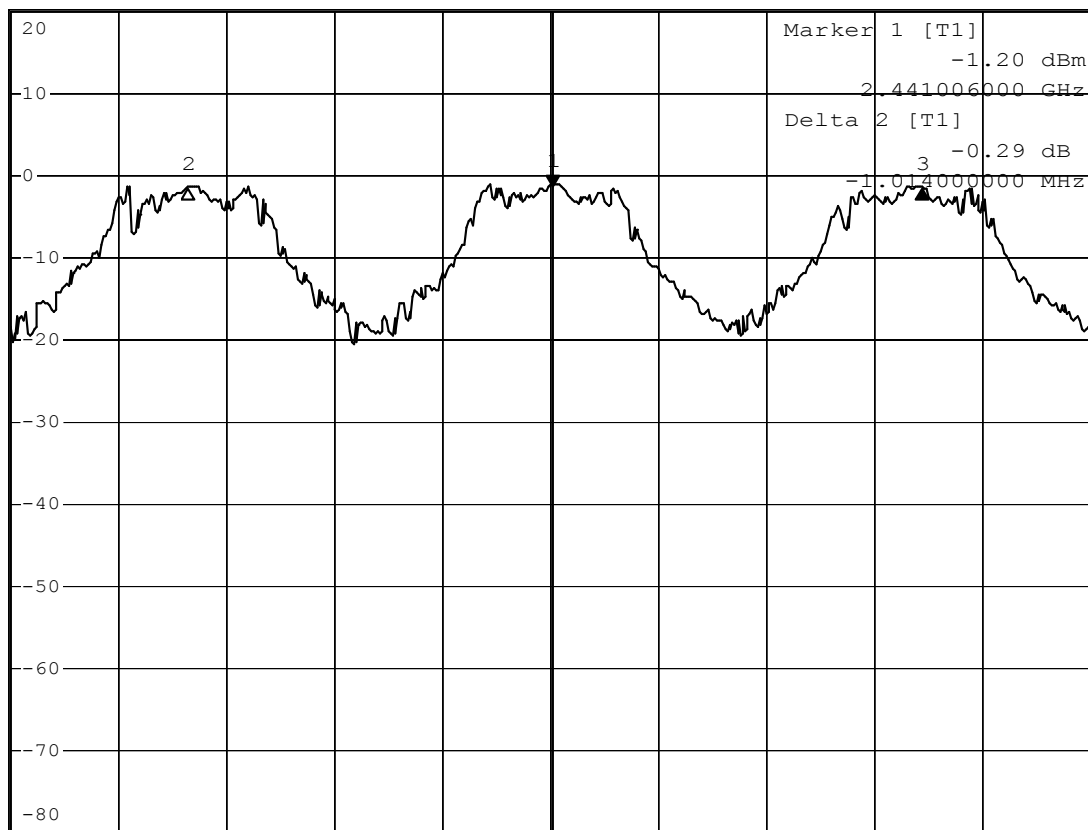
\*Att 30 dB

\*RBW 100 kHz Delta 3 [T1]

VBW 300 kHz -0.27 dB

SWT 2.5 ms 1.026000000 MHz

1 PK  
MAXH



Center 2.441 GHz

300 kHz/

Span 3 MHz

Date: 15.SEP.2005 16:49:08

## Dwell Time

Date: 21 Sept 2005  
EUT: SAGEM OTE BT Headset  
Company: SAGEM COMMUNICATION  
Humidity: 50%  
Temperature: 23°C  
Voltage supply: 3.7VDC from Lithium Battery  
Test by: Sharon Li  
Op. mode: Hopping on

| Burst Duration (ms) | Number of hopping | Time of occupancy<br>(s)    | Results |
|---------------------|-------------------|-----------------------------|---------|
| 2.92                | 64                | $0.00292 \times 64 = 0.187$ | Pass    |



**DELTA MARKER 2**

2.92 ms

Ref 20 dBm

\*Att 30 dB

RBW 1 MHz

Delta 2 [T1]

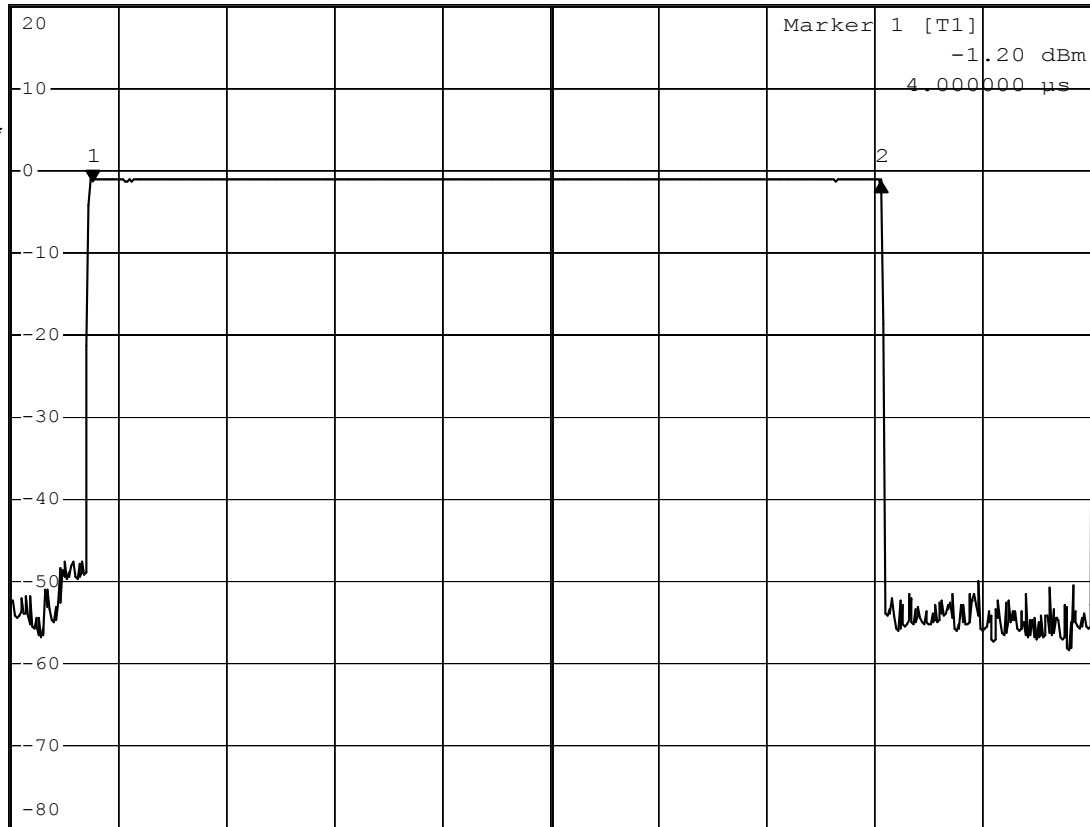
VBW 3 MHz

0.02 dB

SWT 4 ms

2.920000 ms

1 PK \*  
CLRWR



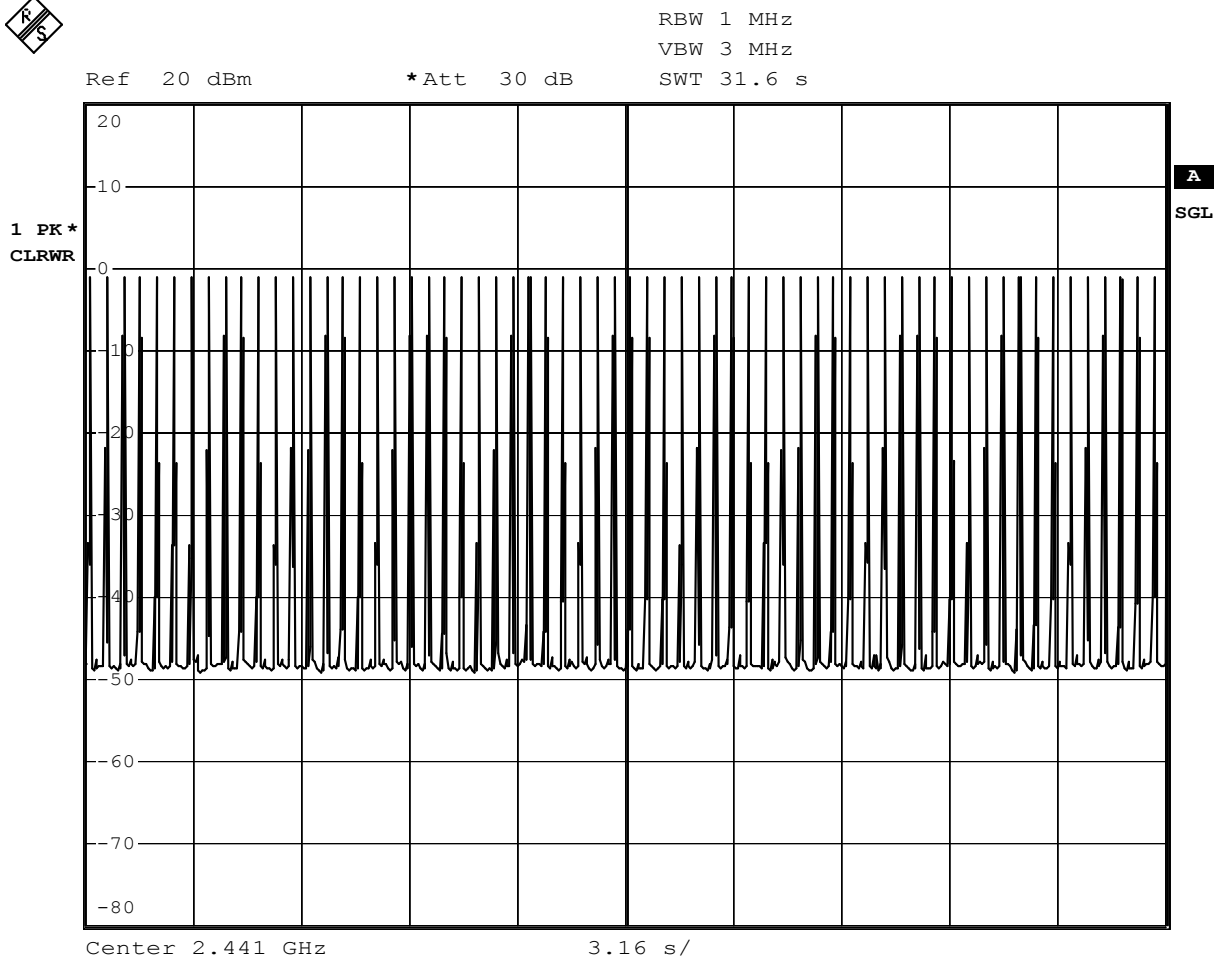
**A**

TRG

Center 2.441 GHz

400 μs/

Date: 15.SEP.2005 16:54:35



Date: 15.SEP.2005 16:56:22

## 20dB Bandwidth

Date: 21 Sept 2005  
 EUT: SAGEM OTE BT Headset  
 Company: SAGEM COMMUNICATION  
 Humidity: 50%  
 Temperature: 23°C  
 Voltage supply: 3.7VDC from Lithium Battery  
 Test by: Sharon Li  
 Op. mode: TX mode, DH5 with PRBS9 payload

| Tx frequency (MHz) | $\Delta f_L$ (MHz) | $\Delta f_H$ (MHz) | $ \Delta f_H  +  \Delta f_L $ (MHz) | Results |
|--------------------|--------------------|--------------------|-------------------------------------|---------|
| 2402               | 468.0              | 456.0              | 924                                 | Pass    |
| 2441               | 468.0              | 452.0              | 920                                 | Pass    |
| 2480               | 460.0              | 468.0              | 928                                 | Pass    |



### FREQUENCY LINE 2

2.402468 GHz

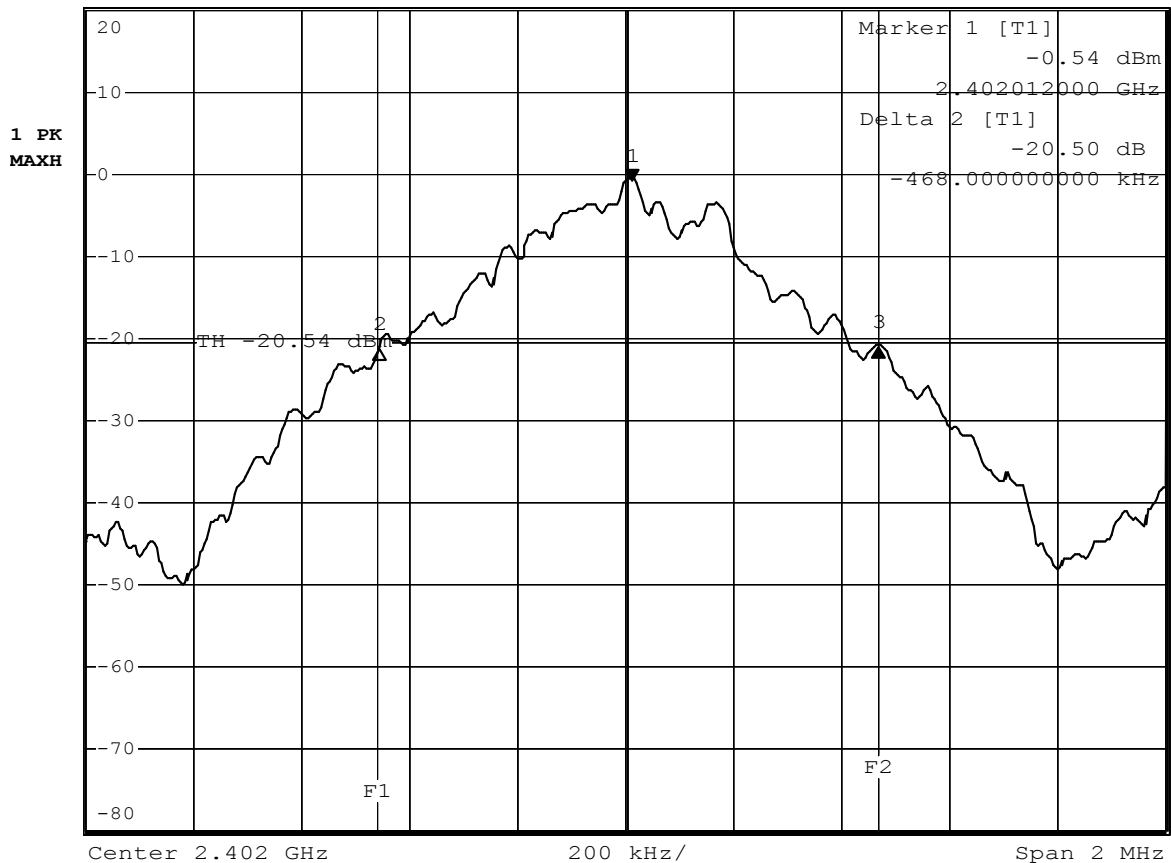
Ref 20 dBm

\*Att 30 dB

\*RBW 30 kHz Delta 3 [T1]

\*VBW 100 kHz -20.32 dB

SWT 2.5 ms 456.000000000 kHz



Date: 15.SEP.2005 17:01:34

Tx frequency: 2402MHz

**FREQUENCY LINE 2**

2.441464 GHz

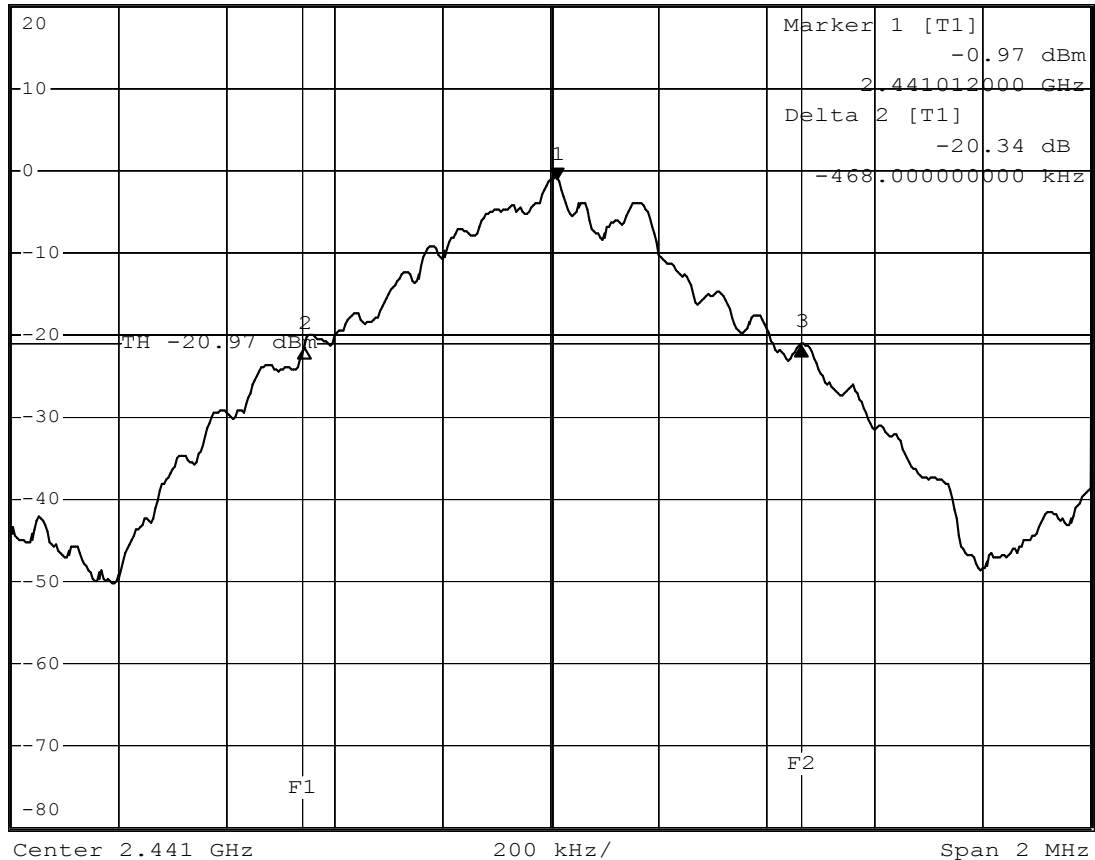
Ref 20 dBm

\*Att 30 dB

\*RBW 30 kHz Delta 3 [T1]

\*VBW 100 kHz -20.23 dB

SWT 2.5 ms 452.00000000 kHz

1 PK  
MAXH

Date: 15.SEP.2005 17:04:05

Tx frequency: 2441MHz

**FREQUENCY LINE 2**

2.480476 GHz

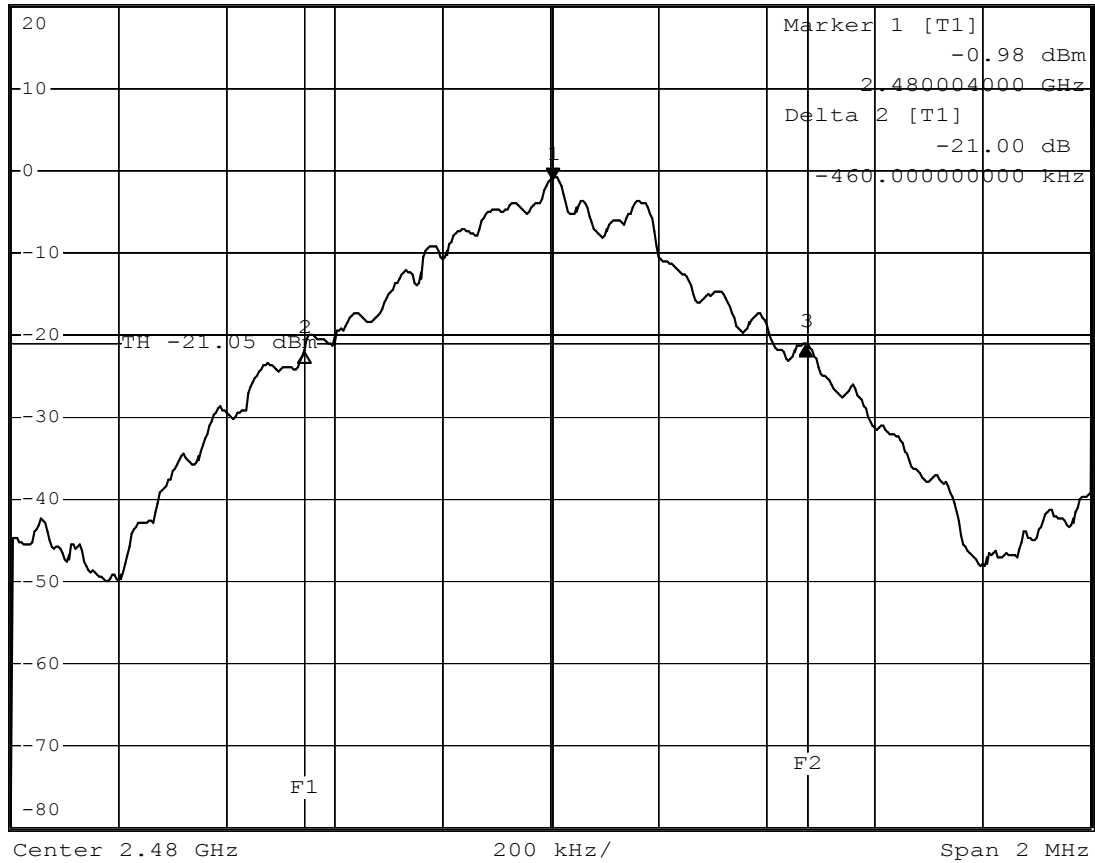
Ref 20 dBm

\*Att 30 dB

\*RBW 30 kHz Delta 3 [T1]

\*VBW 100 kHz -20.18 dB

SWT 2.5 ms 468.00000000 kHz

1 PK  
MAXH

Date: 15.SEP.2005 17:06:04

Tx frequency: 2480MHz

## Peak Output Power

Date: 21 Sept 2005  
 EUT: SAGEM OTE BT Headset  
 Company: SAGEM COMMUNICATION  
 Humidity: 50%  
 Temperature: 23°C  
 Voltage supply: 3.7VDC from Lithium Battery  
 Test by: Sharon Li  
 Op. mode: TX mode, DH1 with PRBS9 payload

| Tx Frequency (MHz) | Power P <sub>PK</sub> (dBm) | Cable Attenuation (dB) | Actual Peak Power (dBm) | Results |
|--------------------|-----------------------------|------------------------|-------------------------|---------|
| 2402               | -0.71                       | 3.52                   | 2.81                    | Pass    |
| 2441               | -0.76                       | 3.65                   | 2.89                    | Pass    |
| 2480               | -0.79                       | 3.60                   | 2.81                    | Pass    |

**MARKER 1**

2.40182 GHz

Ref 20 dBm

\*Att 30 dB

\*RBW 1 MHz

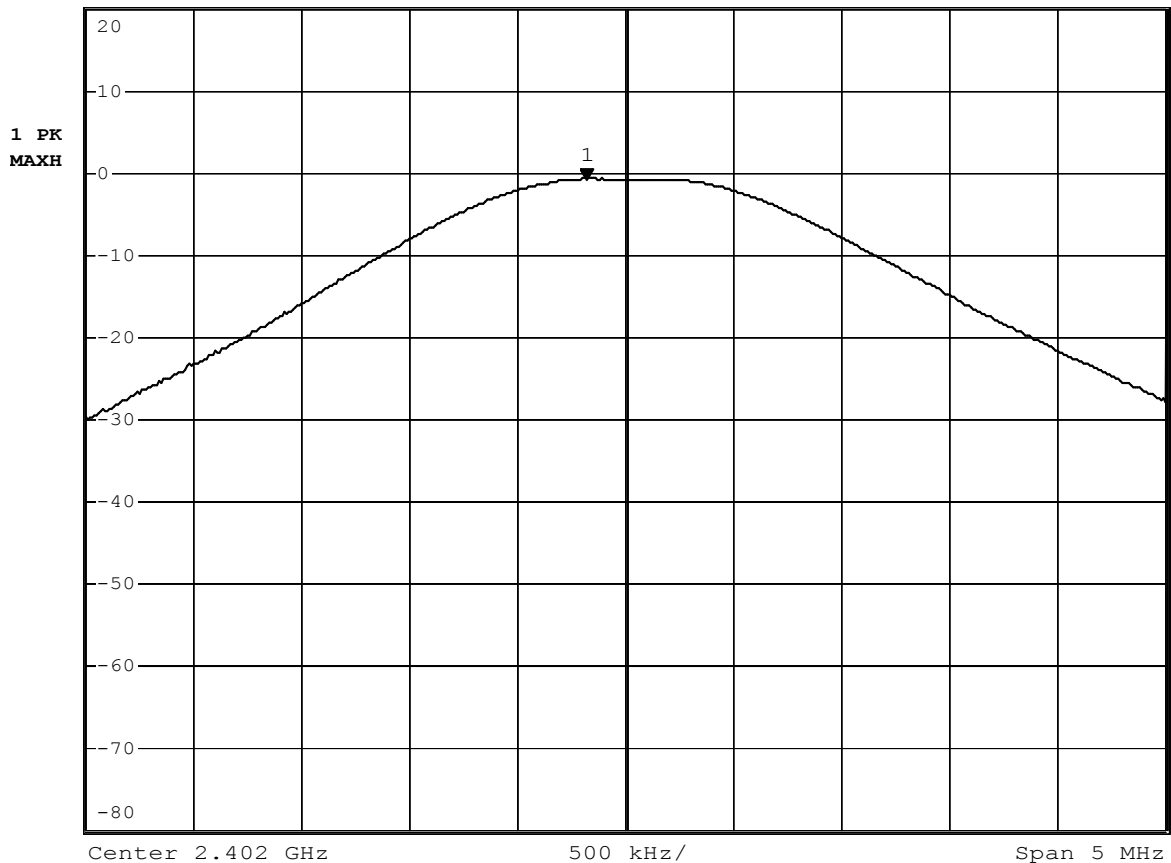
Marker 1 [T1]

VBW 3 MHz

-0.71 dBm

SWT 2.5 ms

2.401820000 GHz



Date: 15.SEP.2005 17:08:14

Tx frequency: 2402MHz



**MARKER 1**

2.44085 GHz

Ref 20 dBm

\*Att 30 dB

\*RBW 1 MHz

VBW 3 MHz

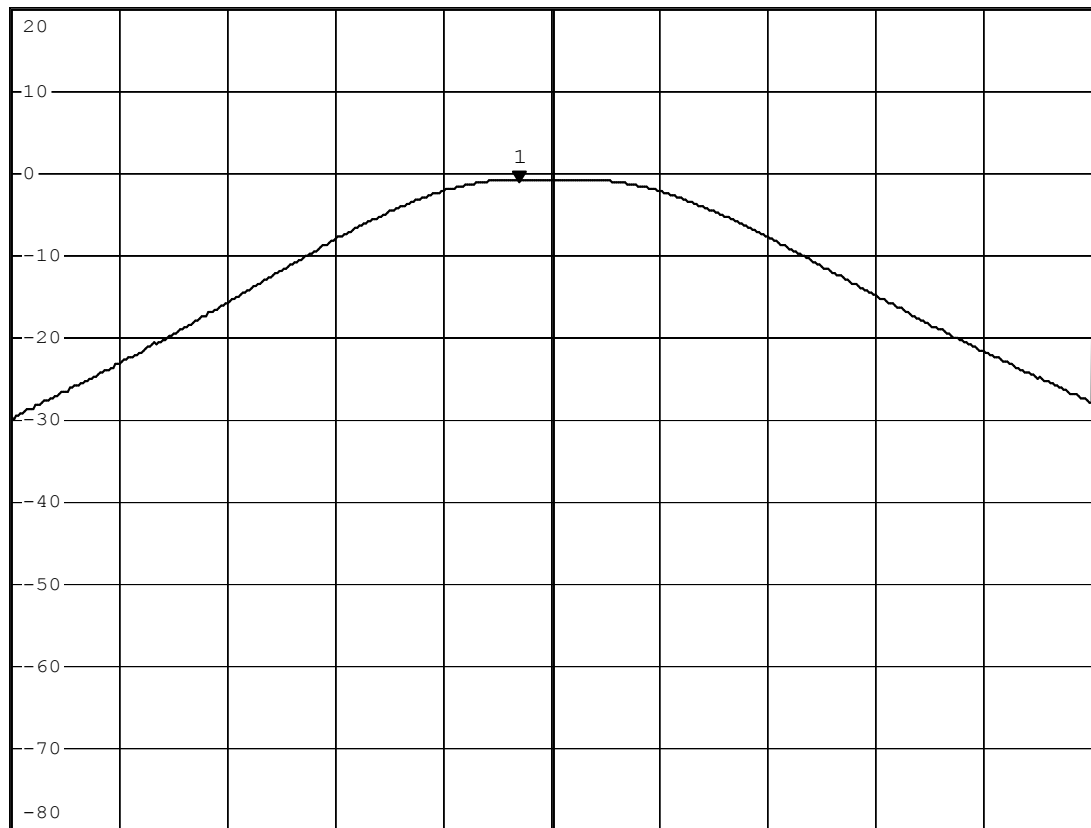
SWT 2.5 ms

Marker 1 [T1]

-0.76 dBm

2.440850000 GHz

1 PK  
MAXH



Date: 15.SEP.2005 17:09:21

Tx frequency: 2441MHz



**MARKER 1**

2.47985 GHz

Ref 20 dBm

\*Att 30 dB

\*RBW 1 MHz

VBW 3 MHz

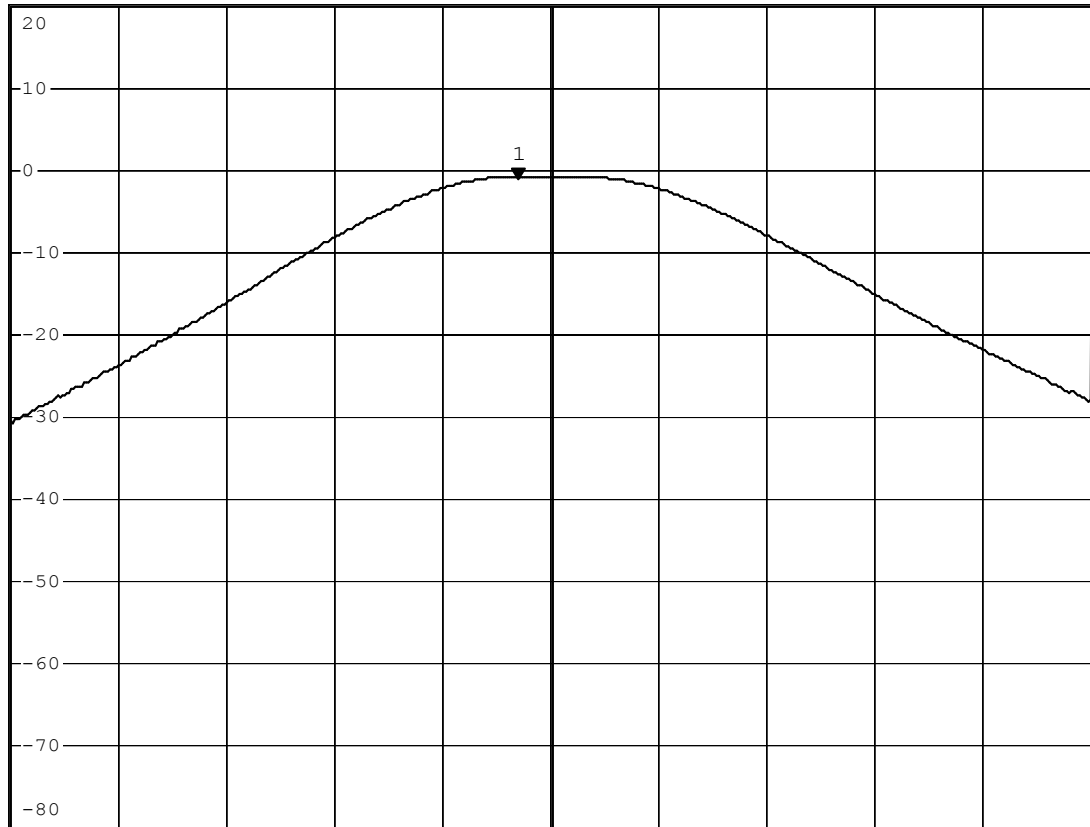
SWT 2.5 ms

Marker 1 [T1]

-0.79 dBm

2.479850000 GHz

1 PK  
MAXH



Center 2.48 GHz

500 kHz/

Span 5 MHz

Date: 15.SEP.2005 17:10:04

Tx frequency: 2480MHz

## Band Edge Compliance

Date: 21 Sept 2005  
 EUT: SAGEM OTE BT Headset  
 Company: SAGEM COMMUNICATION  
 Humidity: 50%  
 Temperature: 23°C  
 Voltage supply: 3.7VDC from Lithium Battery  
 Test by: Sharon Li  
 Op. mode: TX mode, DH1 with PRBS9 payload

| Tx Frequency (MHz) | Peak in band Power level (dBm) | RF power outside 100kHz BW (MHz) | RF power difference outside 100kHz BW (dB) | Results |
|--------------------|--------------------------------|----------------------------------|--------------------------------------------|---------|
| 2402               | 2.39956                        | -41.35                           | -                                          | Pass    |
| 2480               | 2.48452                        | -44.63                           | -                                          | Pass    |

**MARKER 3**

2.39008 GHz

Ref 20 dBm

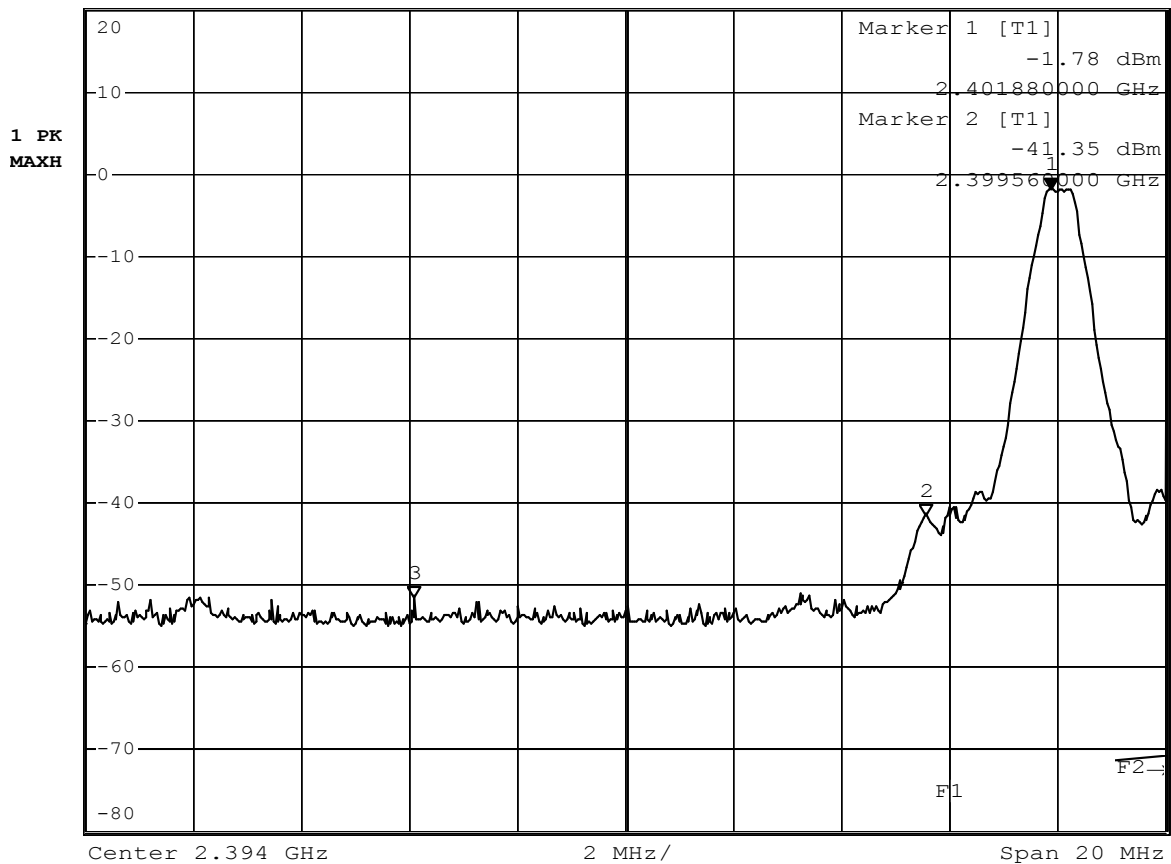
\*Att 30 dB

\*RBW 300 kHz Marker 3 [T1]

\*VBW 1 MHz -51.30 dBm

SWT 2.5 ms

2.390080000 GHz



Date: 15.SEP.2005 17:12:03

Tx frequency: 2402MHz



**VIDEO BANDWIDTH**

10 MHz

Ref 20 dBm

\*Att 30 dB

\*RBW 3 MHz

Marker 2 [T1]

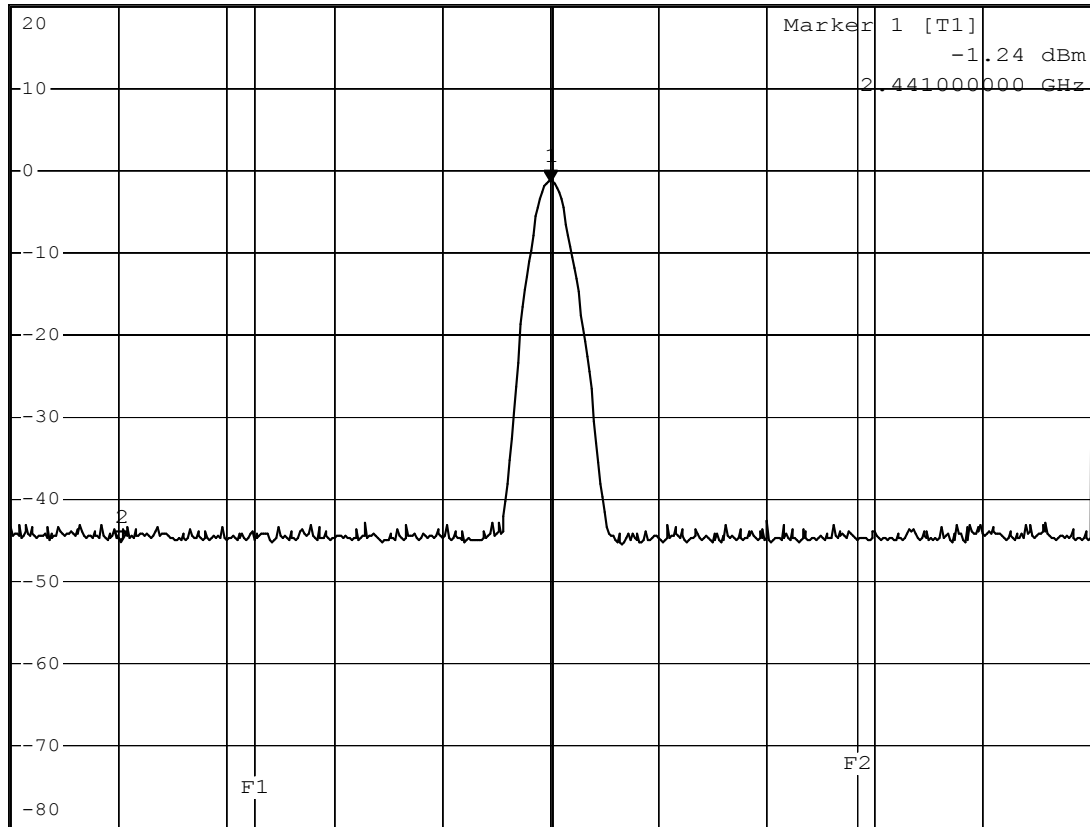
\*VBW 10 MHz

-44.89 dBm

SWT 5 ms

2.381300000 GHz

1 PK  
MAXH



Center 2.441 GHz

15 MHz/

Span 150 MHz

Date: 15.SEP.2005 17:15:08

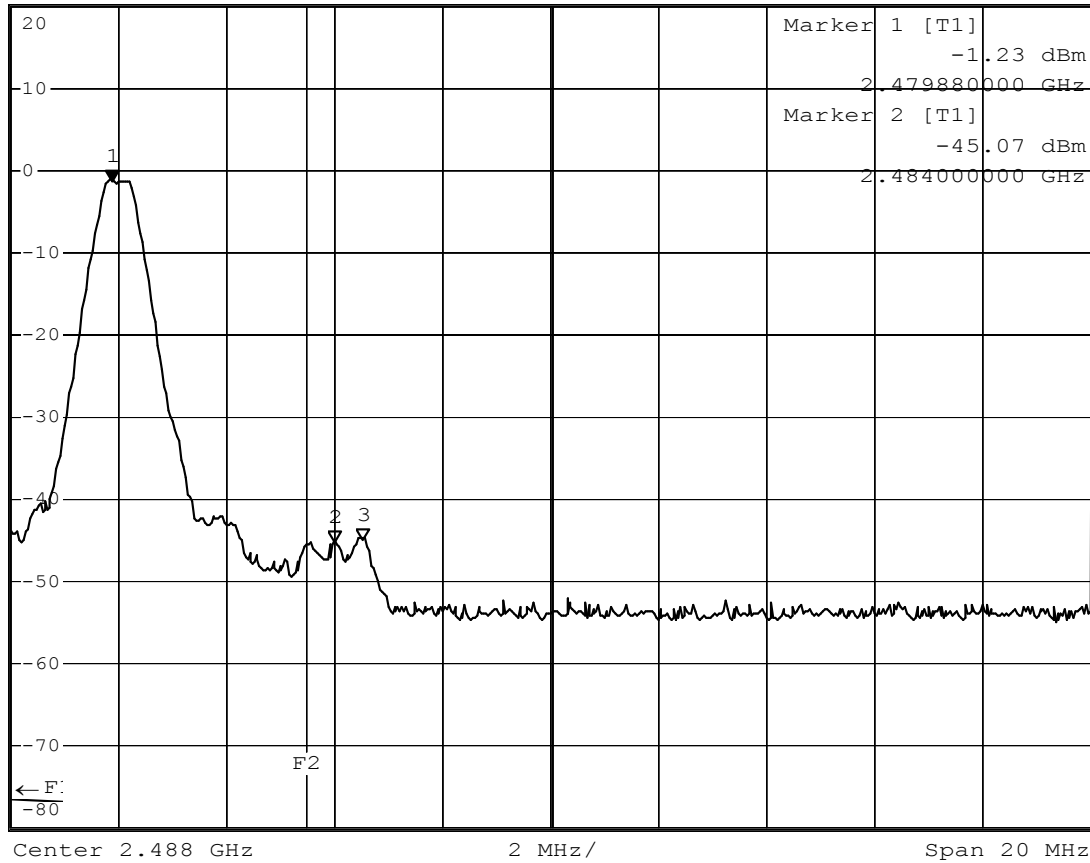
Tx frequency: 2441MHz



**MARKER 3**  
 2.48452 GHz  
 Ref 20 dBm \*Att 30 dB

\*RBW 300 kHz Marker 3 [T1]  
 \*VBW 1 MHz -44.63 dBm  
 SWT 2.5 ms 2.484520000 GHz

1 PK  
 MAXH



Date: 15.SEP.2005 17:18:54

Tx frequency: 2480MHz

## Spurious Emissions - Conducted

Date: 21 Sept 2005  
EUT: SAGEM OTE BT Headset  
Company: SAGEM COMMUNICATION  
Humidity: 50%  
Temperature: 23°C  
Voltage supply: 3.7VDC from Lithium Battery  
Test by: Sharon Li  
Op. mode: TX mode, DH1 with PRBS9 payload

Tx frequency : 2402MHz

| Spurious Frequency (MHz) | Power level (dBm) | Reference value (dBm) | Delta to reference level (dB) | Results |
|--------------------------|-------------------|-----------------------|-------------------------------|---------|
| No Peak Found            | -                 | -                     | -                             | Pass    |

Tx frequency : 2441MHz

| Spurious Frequency (MHz) | Power level (dBm) | Reference value (dBm) | Delta to reference level (dB) | Results |
|--------------------------|-------------------|-----------------------|-------------------------------|---------|
| No Peak Found            | -                 | -                     | -                             | Pass    |

Tx frequency : 2480MHz

| Spurious Frequency (MHz) | Power level (dBm) | Reference value (dBm) | Delta to reference level (dB) | Results |
|--------------------------|-------------------|-----------------------|-------------------------------|---------|
| No Peak Found            | -                 | -                     | -                             | Pass    |

**MARKER 2**

977.06 MHz

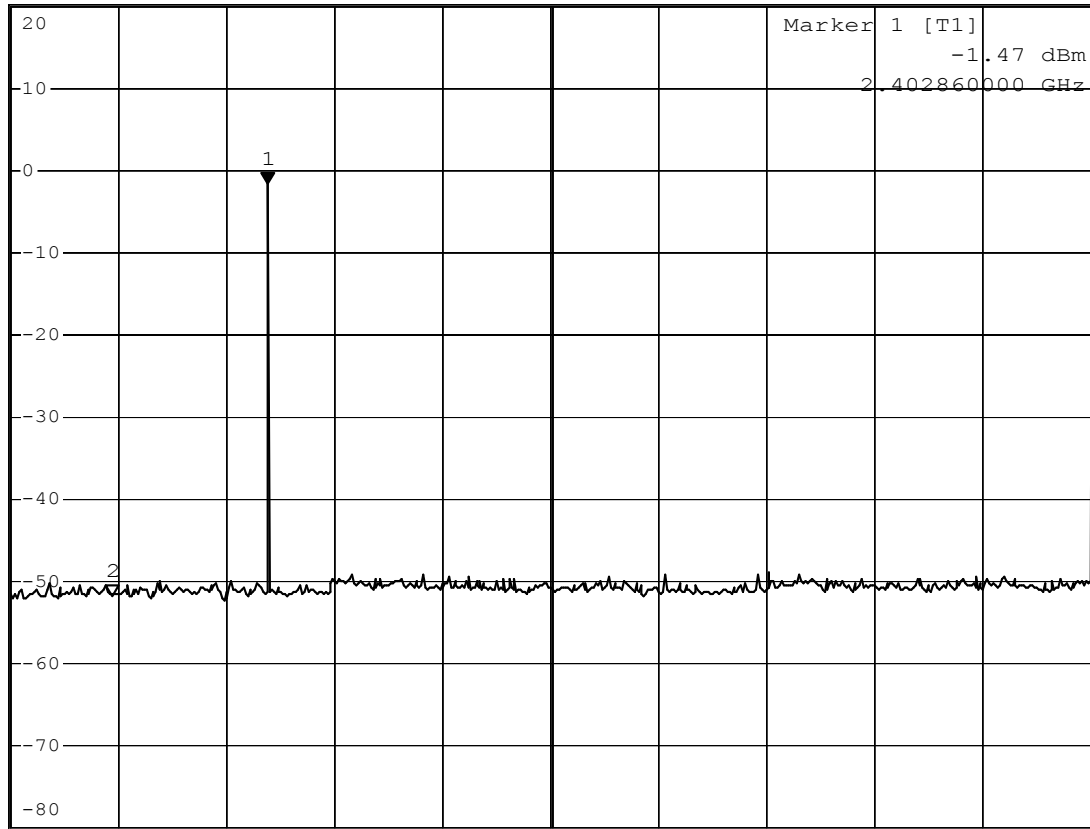
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 2 [T1]

VBW 300 kHz -51.64 dBm

\*SWT 60 s 977.06000000 MHz

**1 PK  
MAXH**

Start 30 MHz

997 MHz/

Stop 10 GHz

Date: 15.SEP.2005 17:23:56

Tx frequency: 2402MHz

**MARKER 1**

15.12 GHz

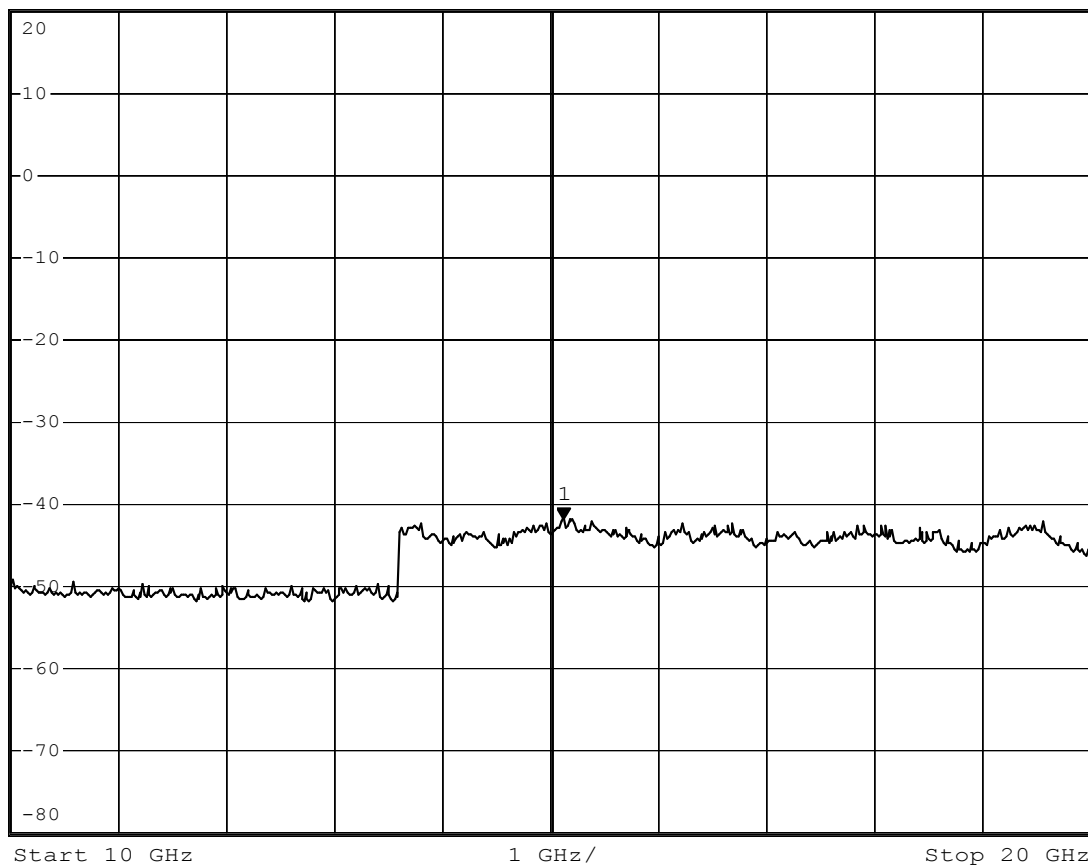
Ref 20 dBm

\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz -41.45 dBm

\*SWT 60 s 15.12000000 GHz

**1 PK  
MAXH**

Date: 15.SEP.2005 17:25:52

Tx frequency: 2402MHz

**MARKER 1**

22.76 GHz

Ref 20 dBm

\*Att 30 dB

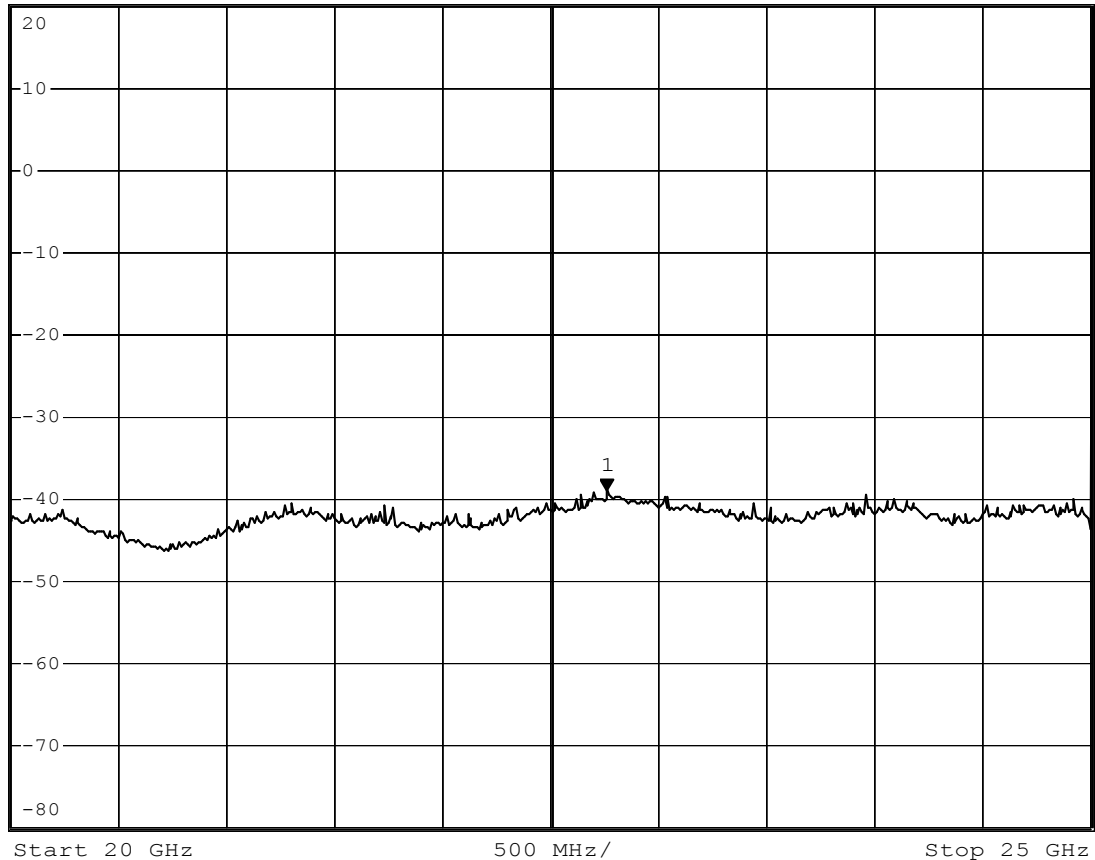
\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz

-38.78 dBm

\*SWT 60 s

22.76000000 GHz

**1 PK  
MAXH**

Date: 15.SEP.2005 17:33:53

Tx frequency: 2402MHz

**MARKER 2**

3.79866 GHz

Ref 20 dBm

\*Att 30 dB

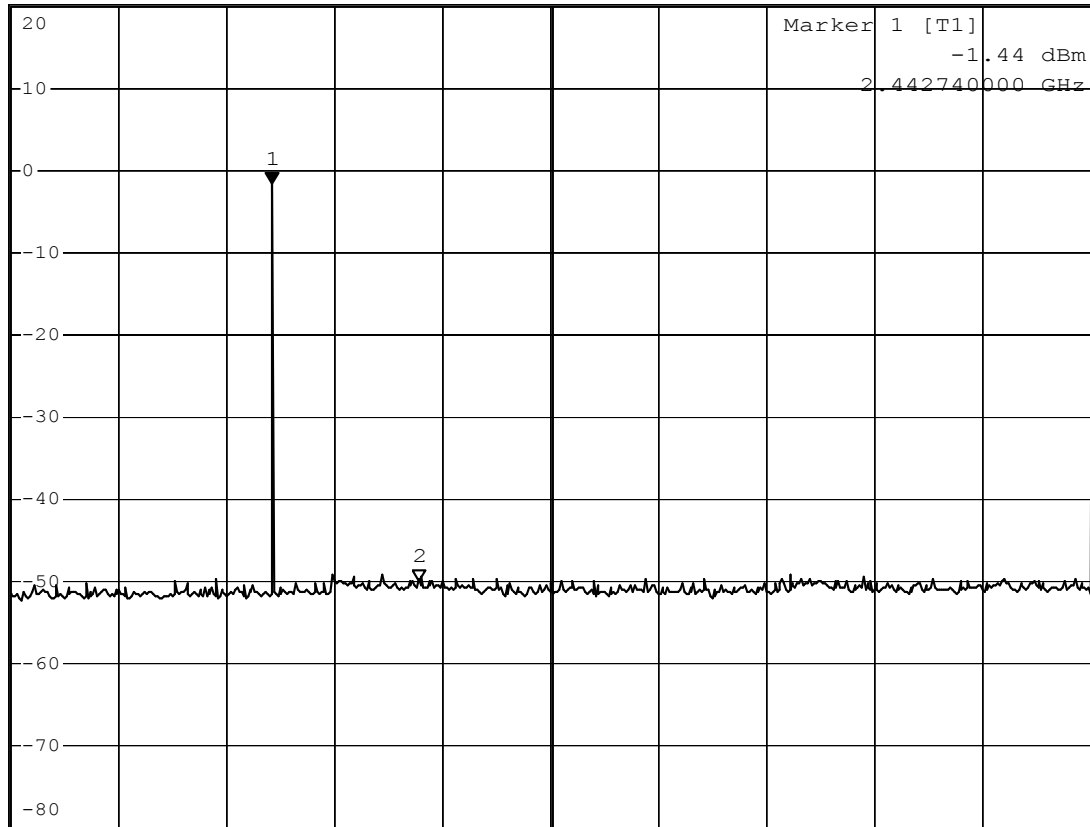
\*RBW 100 kHz Marker 2 [T1]

VBW 300 kHz

-49.59 dBm

\*SWT 60 s

3.798660000 GHz

**1 PK  
MAXH**

Start 30 MHz

997 MHz/

Stop 10 GHz

Date: 15.SEP.2005 17:37:38

Tx frequency: 2441MHz



**MARKER 1**

14.24 GHz

Ref 20 dBm

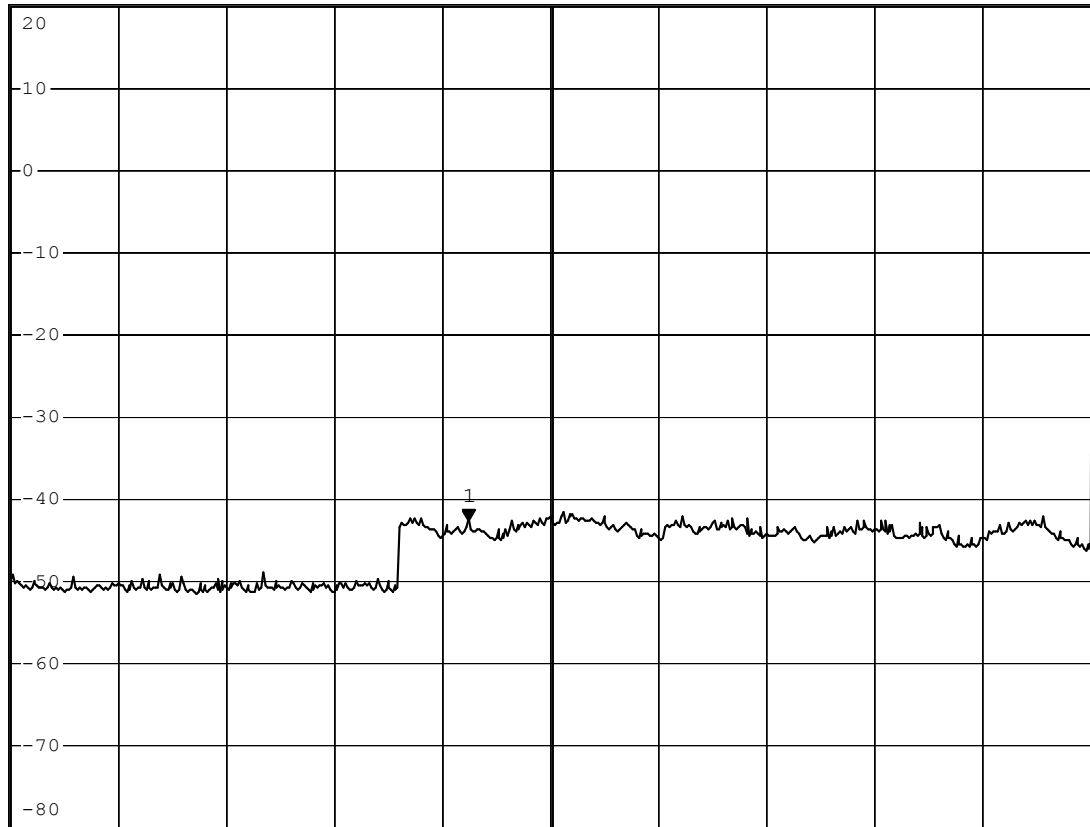
\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz -42.40 dBm

\*SWT 60 s 14.240000000 GHz

1 PK  
MAXH



Start 10 GHz

1 GHz/

Stop 20 GHz

Date: 15.SEP.2005 17:26:30

Tx frequency: 2441MHz

**MARKER 1**

22.76 GHz

Ref 20 dBm

\*Att 30 dB

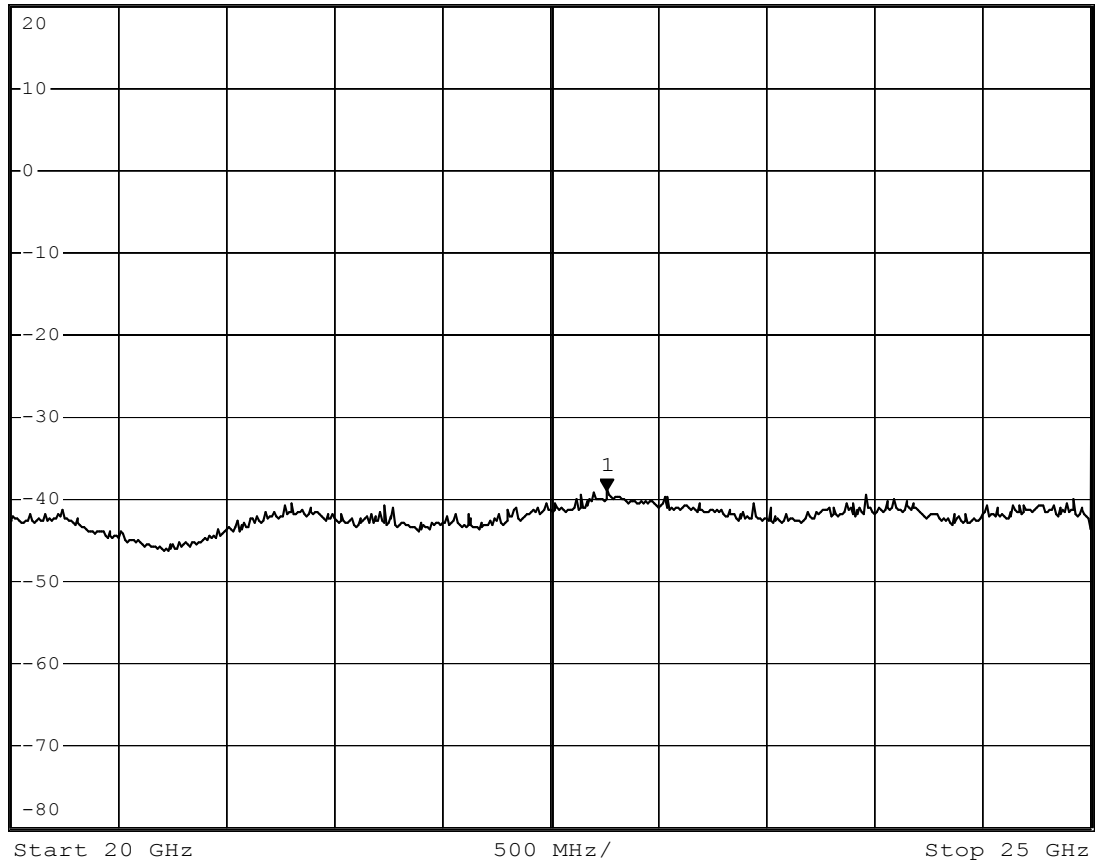
\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz

-38.78 dBm

\*SWT 60 s

22.76000000 GHz

**1 PK  
MAXH**

Date: 15.SEP.2005 17:33:53

Tx frequency: 2441MHz

**MARKER 2**

3.2901 GHz

Ref 20 dBm

\*Att 30 dB

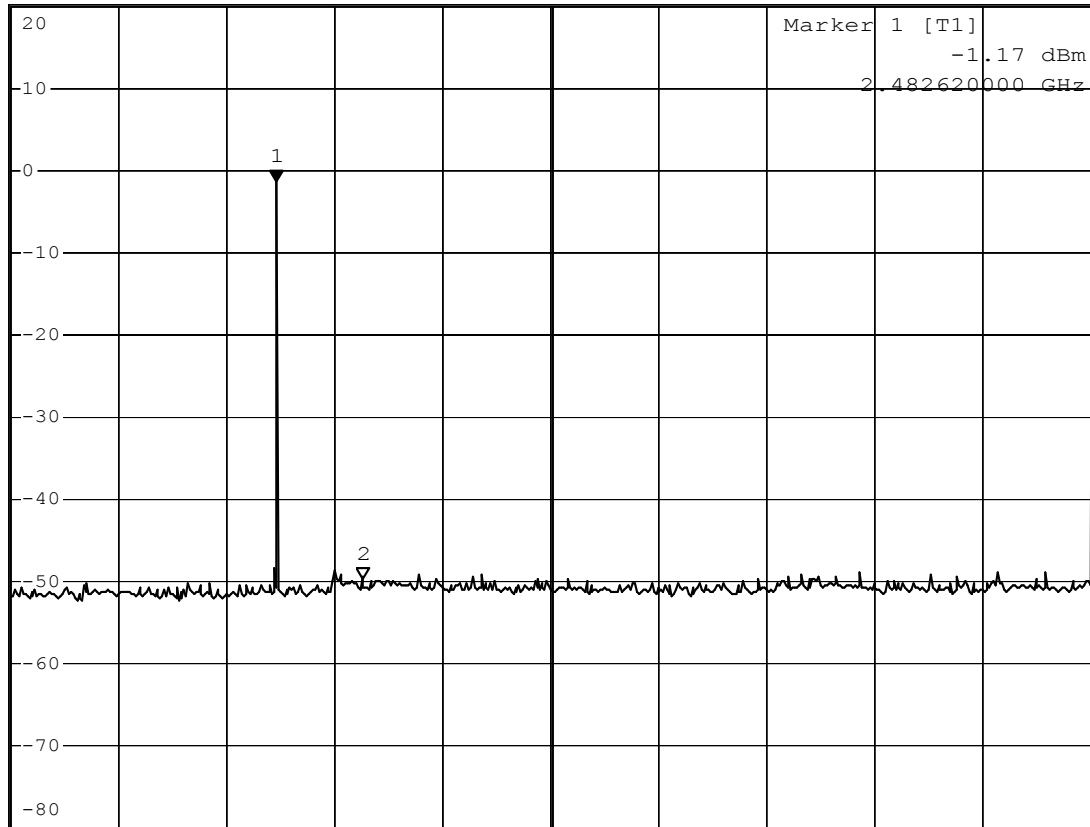
\*RBW 100 kHz Marker 2 [T1]

VBW 300 kHz

-49.50 dBm

\*SWT 60 s

3.290100000 GHz

**1 PK  
MAXH**

Start 30 MHz

997 MHz/

Stop 10 GHz

Date: 15.SEP.2005 17:41:12

Tx frequency: 2480MHz



**MARKER 1**

15.46 GHz

Ref 20 dBm

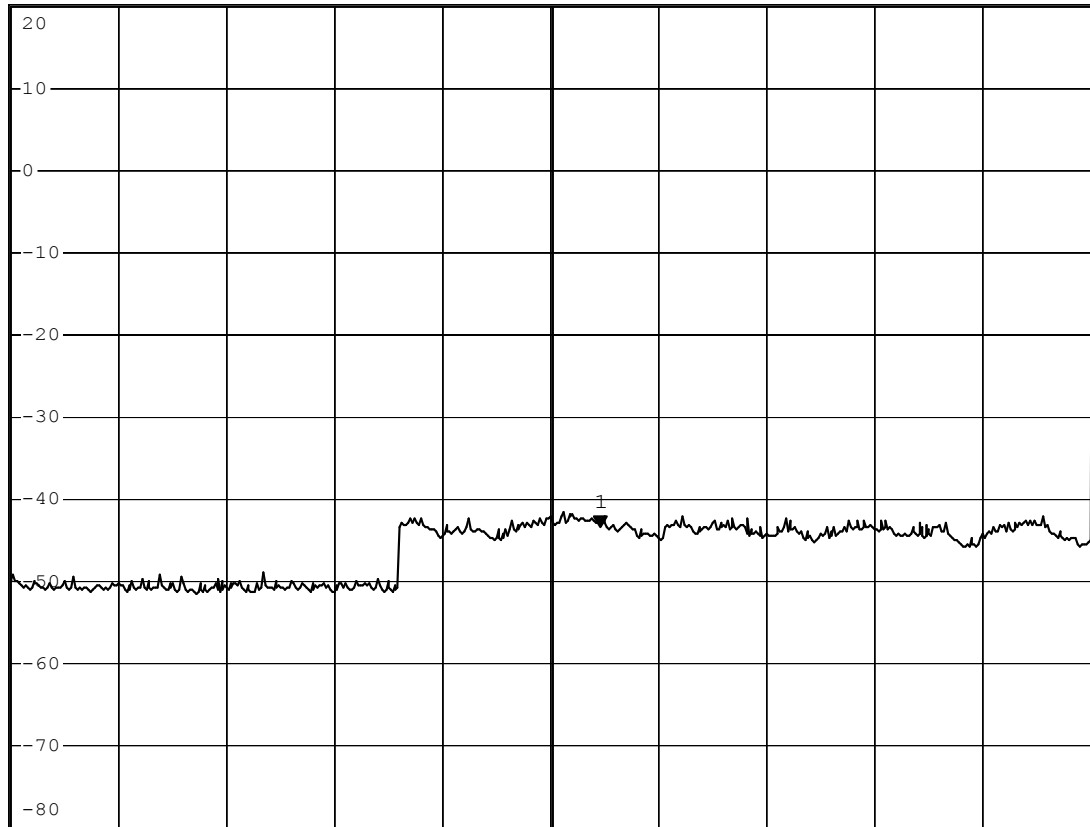
\*Att 30 dB

\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz -43.04 dBm

\*SWT 60 s 15.460000000 GHz

1 PK  
MAXH



Start 10 GHz

1 GHz/

Stop 20 GHz

Date: 15.SEP.2005 17:26:50

Tx frequency: 2480MHz

**MARKER 1**

21.3 GHz

Ref 20 dBm

\*Att 30 dB

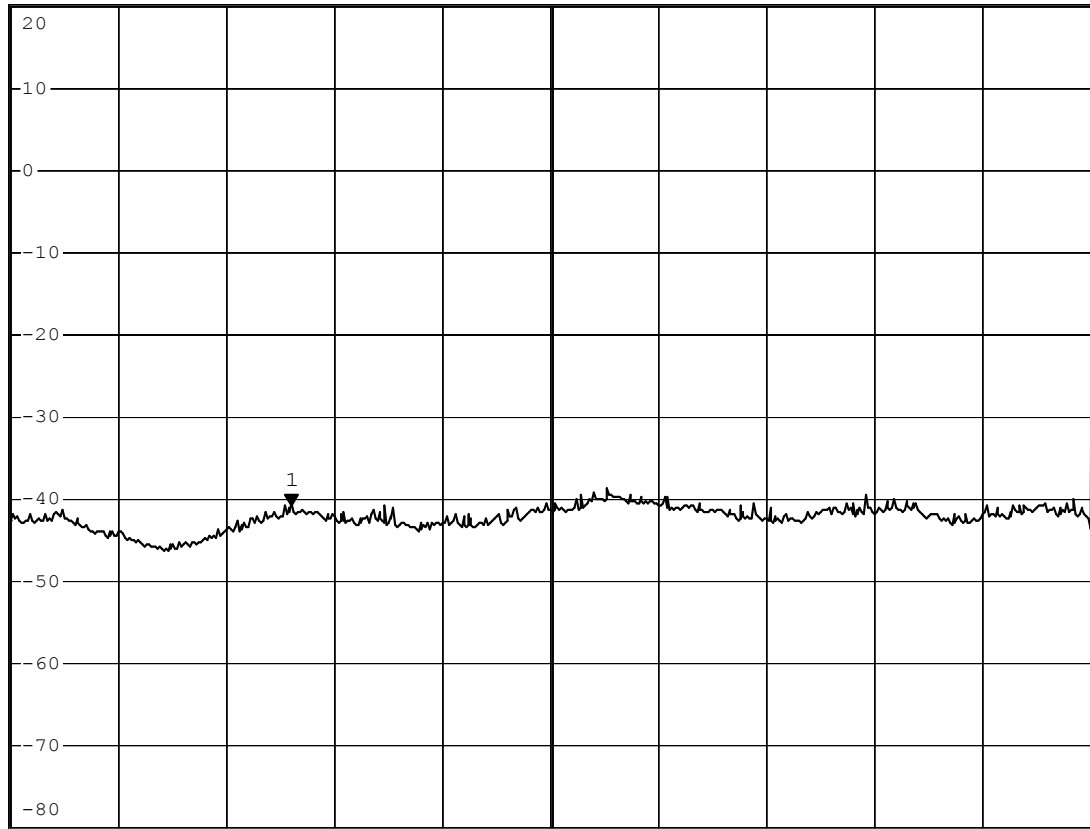
\*RBW 100 kHz Marker 1 [T1]

VBW 300 kHz

-40.57 dBm

\*SWT 60 s

21.300000000 GHz

**1 PK  
MAXH**

Start 20 GHz

500 MHz/

Stop 25 GHz

Date: 15.SEP.2005 17:34:50

Tx frequency: 2480MHz

## Spurious Emissions - Radiated

Date: 21 Sept 2005

EUT: SAGEM OTE BT Headset

Company: SAGEM COMMUNICATION

Humidity: 50%

Temperature: 23°C

Voltage supply: 3.7VDC from Lithium Battery

Test by: Sharon Li

Op. mode: TX mode, DH1 with PRBS9 payload

N.B. There is no spurious found from 26 MHz to 30 MHz.

| Tx frequency<br>(MHz) | Polarization | Spurious<br>Frequency (MHz) | Power Level<br>(dBuV/m) | Detector<br>(P/QP/A) |
|-----------------------|--------------|-----------------------------|-------------------------|----------------------|
| 2402                  | V            | 474.26                      | 26.4                    | QP                   |
| 2402                  | V            | 1601.98                     | 45.16                   | P                    |
| 2402                  | V            | 1601.98                     | 44.24                   | A                    |
| 2402                  | V            | 4804.02                     | 54.68                   | P                    |
| 2402                  | V            | 4803.96                     | 45.49                   | A                    |
| 2402                  | H            | 1602.06                     | 42.36                   | P                    |
| 2402                  | H            | 1602.06                     | 44.16                   | A                    |
| 2402                  | H            | 4803.96                     | 49.55                   | P                    |
| 2402                  | H            | 4803.88                     | 40.25                   | A                    |

| Tx frequency<br>(MHz) | Polarization | Spurious<br>Frequency (MHz) | Power Level<br>(dBuV/m) | Detector<br>(P/QP/A) |
|-----------------------|--------------|-----------------------------|-------------------------|----------------------|
| 2441                  | V            | 445.32                      | 32.0                    | QP                   |
| 2441                  | V            | 1627.98                     | 44.07                   | P                    |
| 2441                  | V            | 1627.94                     | 43.13                   | A                    |
| 2441                  | V            | 4881.98                     | 56.85                   | P                    |
| 2441                  | V            | 4882.14                     | 49.64                   | A                    |
| 2441                  | H            | 438.656                     | 33.2                    | QP                   |
| 2441                  | H            | 1627.92                     | 42.22                   | P                    |
| 2441                  | H            | 1628.02                     | 41.00                   | A                    |
| 2441                  | H            | 4881.96                     | 51.09                   | P                    |
| 2441                  | H            | 4881.88                     | 44.81                   | A                    |

| Tx frequency<br>(MHz) | Polarization | Spurious<br>Frequency (MHz) | Power Level<br>(dBuV/m) | Detector<br>(P/QP/A) |
|-----------------------|--------------|-----------------------------|-------------------------|----------------------|
| 2480                  | V            | 448.016                     | 32.2                    | QP                   |
| 2480                  | V            | 1654.10                     | 44.84                   | P                    |
| 2480                  | V            | 1653.98                     | 44.01                   | A                    |
| 2480                  | V            | 4959.96                     | 57.28                   | P                    |
| 2480                  | V            | 4960.00                     | 52.32                   | A                    |
| 2480                  | H            | 438.668                     | 32.6                    | QP                   |
| 2480                  | H            | 1653.94                     | 44.77                   | P                    |
| 2480                  | H            | 1653.98                     | 44.04                   | A                    |
| 2480                  | H            | 4960.06                     | 51.59                   | P                    |
| 2480                  | H            | 4960.08                     | 46.55                   | A                    |