

Information about the Applicant

Company Name	Motorola Inc.
Grantee	Mike Ramnath
Address	8000 West Sunrise Blvd.
City, State, Zip	Ft. Lauderdale, FL 33322
Job Number	SPTE0008
Model	F4421A & F4426A
FCC ID	AZ489FT7008
Agent	Rod Munro
Approval Type	Original
Equipment Class	DSS Part 15, Spread Spectrum Transmitter
Rule Part	15.247 FHSS

Overview

Reference cover letter provided by the client. This compliance opinion covers the Bluetooth radio and is one of two compliance opinions, one for the Bluetooth and one for the GSM.

Recommendation

All items have been resolved to my satisfaction; I am therefore recommending this for approval.

Signature


Findings	
Specification	Finding
2.1033(b)(6)	<p>2.1033 specifies that a report of measurements showing compliance with the pertinent FCC technical requirements. This report shall identify the test procedure used (e.g., specify the FCC test procedure, or industry test procedure that was used), the date the measurements were made, the location where the measurements were made, and the device that was tested (model and serial number, if available).</p> <p>The date the measurements were made, and the location where the measurements were made was not provided in the supplemental reports.</p>
15.207 (c)	Page 9 of the users manual indicates the EUT may be "On" while charging. Section 15.207 states Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits. No conducted emissions data was submitted.
15.101	As specified in 15.101, approval is required for digital devices. The Power Pad host is a digital device. Please provide information to support that compliance.
Simultaneous Transmissions Co-Location	The radios must be tested individually. Assuming that the radios do not share an antenna, only radiated tests for simultaneous transmission is required. If the radios share an antenna, antenna conducted measurements would also be required. Only one set of worst case simultaneous transmission data is going to be requested to be submitted at this time. The test engineer should indicate the worst case condition and provide justification as to why the worst case condition was chosen. The grantee should be reminded that even if the FCC requests one set of data, they are responsible for compliance for all modes of simultaneous transmission. No data was supplied to support the requirement.
Other	The Supplemental Test Report has calculated the output power incorrectly for the mid and high channels.
15.247(c)	The Supplemental Bluetooth Test Report indicates in the procedure that an HP 8562A was used for conducted spurious emissions. The measurement procedure indicates testing was done to 25 GHz. The equipment list specifies the frequency band of the equipment used is 10 kHz – 22 GHz. The equipment used is not capable of making the measurement described.
15.105	The manual on page IV incorrectly refers to "Part 90" of the FCC rules.
OET 65 Supplement C EAB Part 22/24 SAR Review Reminder Sheet	<p>Please provide a discussion harmonizing the conducted powers stated in the EMC and SAR report.</p> <p>FCC Requirement: "Conducted power in SAR report should be greater than or equal to what's in EMC report, but not exceeding tune-up/tolerance"</p> <p>The supplemental EMC Report for FCC ID: AZ489FT7008 indicates output power was provided by the Motorola SAR lab on 9/06/03 – 9/08/03 & 10/02/03. The SAR report doesn't contain power measurements that match EMC report. The SAR report has power slump data measured with a thermocouple sensor (fine for relative measurement). The EMC report has average power readings using Gigatronics power meter and sensor (that provide more accurate measurement of modulated signals). The SAR Report should contain similar measurements.</p>
47 CFR 22.913a 47 CFR 24.232b	<p>"Part 22/24 limits are in terms of ERP and EIRP, as measured using substitution method not calculation...Please submit (Part 22, 24 handsets) radiated power using substitution method."</p> <p>No ERP of fundamental data for GSM (see 47 CFR 22.913a), no EIRP for PCS (see 24.232b). Calculations from conducted data not allowed. Must be radiated measurement using substitution method of TIA / EIA 603 2.2.12. We received a request from the FCC last August: "Part 22/24 limits are in terms of ERP and EIRP, as measured using substitution method not calculation...Please submit (Part 22, 24 handsets) radiated power using substitution method."</p>
OET 65 Supplement C EAB Part 22/24 SAR Review Reminder Sheet	SAR report used 12.5% scaling factor or 1:8 which is typical for GSM. Please confirm 1:8 data only mode rather than the more typical 2:8 or 3:8 for GPRS is accurately representative for this product.

Opinions

Specification Requirements	Description
15.207	Conducted Power Line Emissions

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: Page 9 of the users manual indicates the EUT may be "On" while charging. Section 15.207 states Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits. No conducted emissions data was submitted.

Resolved with additional information provided by the client.

Reference: Supplemental Report

Specification Requirements	Description
15.247(a)(1)(iii)	Bandwidth

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted test results in the form of a test report

Reference: Test Report

Specification Requirements	Description
15.247(b)(1)	Power Output

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted test results in the form of a test report

Reference: Test Report

Specification Requirements	Description
15.247(c)	Spurious Emissions, Antenna Conducted

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: The Supplemental Test Report indicates in the procedure that an HP 8562A was used for this measurement. The measurement procedure indicates testing was done to 25 GHz. The equipment list specifies the frequency band of the equipment used is 10 kHz – 22 GHz. The equipment used is not capable of making the measurement described.

Resolved with additional information provided by the client.

Reference: Test Report

Specification Requirements	Description
15.247(c)	Spurious Emissions, Radiated Emissions

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted test results in the form of a test report.

Reference: Test Report

Specification Requirements	Description
15.247(f)	Power Spectral Density

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: 15.247(d) specifies: For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Reference: Not Required

Specification Requirements	Description
15.247(c)	Band Edge Compliance

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted test results in the form of a test report.

Reference: Test Report

Specification Requirements	Description
2.1091	RF Exposure

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted MPE estimates demonstrating compliance.

Reference: Exhibit K

Specification Requirements	Description
Additional Requirements	FCC Compliance common to all Bluetooth Devices

Opinion: The Equipment meets the intent specified by the requirements listed above.

Discussion: The Applicant has submitted the required information in the test report.

Reference: Test Report

Specification Requirements	Description
Additional Requirements	Requirements for a Digital Device

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: As specified in 15.101, verification is required for digital devices. The Power Pad host is a digital device. There has been nothing provided to support that compliance.

Resolved with additional information provided by the client.

Reference: Digital Device Report.

Specification Requirements	Description
Additional Requirements	Simultaneous Transmissions

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: The radios must be tested individually. Assuming that the radios do not share an antenna, only radiated tests for simultaneous transmission is required. If the radios share an antenna, antenna conducted measurements would also be required. Only one set of worst case simultaneous transmission data is going to be requested to be submitted at this time. The test engineer should indicate the worst case condition and provide justification as to why the worst case condition was chosen. The grantee should be reminded that even if the FCC requests one set of data, they are responsible for compliance for all modes of simultaneous transmission. Aggregate power must be considered in RF exposure evaluation.

Resolved with additional information provided by the client.

Reference: Supplemental report

Specification Requirements	Description
15.105	User Information

Opinion: The Equipment does not meet the intent specified by the requirements listed above.

Discussion: The manual on page IV incorrectly refers to "Part 90" of the FCC rules.

Resolved with additional information provided by the client.

Reference: User Manual.