

Testing and Certification for REFERENCE (#4)	
Realtek WiFi FCC 15.247/RSS-247	15.207/RSS-247 Conducted RF emissions on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (2) Tx ON, Tx OFF NOTE: Performed during Simul-Tx & Digital Device Measurements at Antenna Port
15.207/RSS-247 RF Emi AC Mains PL Cond [RT WiFi]	Tests: 6dB BW, 99% BW, PSD, Cond Pwr, CSE Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (3) 802.11 b/g/n/20
15.247/RSS-247 Ant Port [RT WiFi]	15.247/RSS-247 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (3) 802.11 b/g/n/20
15.247/RSS-247 Spur Emi (Radiated) RT [WiFi] [RT WiFi]	
Test Report RT [WiFi]	ETR2201780-01 Realtek WiFi
FCC 15.247/RSS-247	15.207/RSS-247 Conducted RF emissions on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (2) Tx ON, Tx OFF NOTE: Performed during Simul-Tx & Digital Device Measurements at Antenna Port
15.207/RSS-247 RF Emi AC Mains PL Cond [RT BLE]	Tests: 6dB BW, 99% BW, PSD, Cond Pwr, CSE Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) BLE ONLY
15.247/RSS-247 Ant Port [RT BLE]	15.247/RSS-247 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) BLE ONLY
15.247/RSS-247 Spur Emi (Radiated) [RT BLE]	
Test Report [RT BLE]	ETR2201780-02 Realtek BLE
Sub-1GHz 900MHz FHSS Tx/Rx FCC 15.247/RSS-247	15.207/RSS-247 Conducted RF emissions on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (2) Tx ON, Tx OFF NOTE: Performed during Simul-Tx & Digital Device Measurements at Antenna Port
15.207/RSS-247 RF Emi AC Mains PL Cond [900MHz Tx/Rx]	Tests: 20dB BW, 99% BW, Hopping, Cond Pwr, CSE Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) FHSS
15.247/RSS-247 Ant Port [900MHz Tx/Rx]	15.247/RSS-247/15.109 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-10GHz Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) FHSS Tx 15.247 up to 10GHz Modes: (1) FHSS Rx 15.109 up to 5GHz
15.247/RSS-247 Spur Emi (Radiated) [900MHz Tx/Rx]	
Test Report [900MHz Tx/Rx]	ETR2201780-03 900MHz TxRx
Sub-1GHz 300/400MHz Rx FCC 15.109/RSS-GEN	15.109/RSS-GEN Rad Spur EMI Test: Preliminary & final measurements: 30MHz-2GHz Channels: (5) 310/315/390, 433.3, 434.5 Power: 120VAC, 60Hz. Modes: (1) Rx at specified channel
15.109/RSS-GEN Spur Emi (Radiated) [300/400MHz Rx]	
Test Report [300/400MHz Rx]	ETR2201780-04 300MHz Rx
Security 3.0 BLE FCC 15.247/RSS-247	15.207/RSS-247 Conducted RF emissions on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (2) Tx ON, Tx OFF NOTE: Performed during Simul-Tx & Digital Device Measurements at Antenna Port
15.207/RSS-247 RF Emi AC Mains PL Cond [Sec-3.0 BLE]	Tests: 6dB BW, 99% BW, PSD, Cond Pwr, CSE Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) BLE ONLY
15.247/RSS-247 Ant Port [Sec-3.0 BLE]	15.247/RSS-247 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Channels: (3) Low / Mid / High Power: 120VAC, 60Hz. Modes: (1) BLE ONLY
15.247/RSS-247 Spur Emi (Radiated) [Sec-3.0 BLE]	
Test Report [Sec-3.0 BLE]	ETR2201780-05 Security BLE
Simultaneous Multi-Tx Testing Digital Device EMC Testing	
15.207/RSS-247/15.107 Cond RF Emi on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (1) All Tx ON, use for all CERT PL-CE Data [w/ 1 GDO type] Modes: (1) All Tx OFF for Digital Device 15.109/ICES-003 [w/ 3 GDOs]	
15.207/RSS-247 RF Emi AC Mains PL Cond	NOTE: Digital Device Cond EMI testing per 15.109/ICES-003 performed on 3 GDO types having most full-featured configuration: (1) Liftmaster Model [TBD] (1) Raynor Model [TBD] (1) Chamberlain Model [TBD]
15.247/RSS-247/15.109 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Power: 120VAC, 60Hz. Modes: (1) RT-WIFI/Sec3.0 BLE/FHSS [w/ 1 GDO type] Modes: (1) RT-BLE/FHSS [w/ 1 GDO type] Modes: (1) All Tx OFF, Limits 15.109 & ICES-003 [w/ 3 GDOs]	
15.247/RSS-247 Spur Emi (Radiated) [Multi-Tx] [Dig Device]	NOTE: Digital Device Cond EMI testing per 15.109/ICES-003 performed on 3 GDO types having most full-featured configuration: (1) Liftmaster Model [TBD] (1) Raynor Model [TBD] (1) Chamberlain Model [TBD]
Test Report [Multi-Tx] RE & CE [Digital Device]	ETR2201780-06 MultiTx
Test Report RE & CE	Included in the following reports ETR2201780-01, -02, -03, -04
USA & Canada Certifications	
FCC Certification	FCC ID: HBW0458X2 for all FCC Certs Board Variants: 003-0458-1, 003-0458-5 (1) RSS-247 Cert for RT WiFi, RT BLE, Sec 3.0 BLE (1) RSS-247 Cert for 900MHz FHSS
ISED Canada Certification	IC ID: 2666A-0458X2 Board Variants: 003-0458-4, 003-0458-5

Testing and Certification for Variant (#2)	
Realtek WiFi FCC 15.247/RSS-247	15.207/RSS-247 RF Emi AC Mains PL Cond [Realtek WiFi]
15.247/RSS-247 Ant Port [Realtek WiFi]	No testing, reference existing data
15.247/RSS-247 Spur Emi (Radiated) [Realtek WiFi]	15.247/RSS-247 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Channels: (2) Low & High ONLY Power: 120VAC, 60Hz. Modes: (1) 802.11 n20 ONLY (assumed worst-case) SPOT CHECK Tx Spurious Emissions upto 4th harmonic +3dB acceptance criteria. Reference existing data for other modes/channels
Test Report RT [WiFi]	ETR2201781-01 Realtek WiFi Spot Checks
Realtek BLE FCC 15.247/RSS-247	15.207/RSS-247 RF Emi AC Mains PL Cond [Realtek BLE]
15.247/RSS-247 Ant Port [Realtek BLE]	No testing, reference existing data
15.247/RSS-247 Spur Emi (Radiated) [Realtek BLE]	15.247/RSS-247 Rad Spur EMI, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Channels: (2) Low & High ONLY Power: 120VAC, 60Hz. Modes: (1) BLE ONLY SPOT CHECK Tx Spurious Emissions upto 4th harmonic +3dB acceptance criteria. Reference existing data for other modes/channels
Test Report [Realtek BLE]	ETR2201781-02 Realtek BLE Spot Checks
Sub-1GHz 900MHz FHSS Tx/Rx FCC 15.247/RSS-247	15.207/RSS-247 RF Emi AC Mains PL Cond [900MHz Tx/Rx]
15.247/RSS-247 Ant Port [900MHz Tx/Rx]	No testing, reference existing data
15.247/RSS-247 Spur Emi (Radiated) [900MHz Tx/Rx]	15.247/RSS-247/15.109 Rad Spur EMI, BEC & EIRP Test: Prelim & final measurements: 30MHz-10GHz Channels: (2) Low & High ONLY Power: 120VAC, 60Hz. Modes: (1) FHSS Tx 15.247 up to 10GHz SPOT CHECK Tx Spurious Emissions upto 4th harmonic +3dB acceptance criteria. Modes: (1) FHSS Rx 15.109 up to 5GHz (NO TESTING) NO SPOT CHECK TESTS ON FHSS Rx Reference existing data for other modes/channels
Test Report [900MHz Tx/Rx]	ETR2201781-02 FHSS Spot Checks
Sub-1GHz 300/400MHz Rx FCC 15.109/RSS-GEN	15.109/RSS-GEN Spur Emi (Radiated) [300/400MHz Rx]
15.109/RSS-GEN Spur Emi (Radiated) [300/400MHz Rx]	No testing, reference existing data
Security 3.0 BLE FCC 15.247/RSS-247	15.207/RSS-247 RF Emi AC Mains PL Cond [Sec-3.0 BLE]
15.247/RSS-247 Ant Port [Sec-3.0 BLE]	No Testing, Radio is Depopulated
15.247/RSS-247 Spur Emi (Radiated) [Sec-3.0 BLE]	
Test Report [Sec-3.0 BLE]	
Simultaneous Multi-Tx Testing Digital Device EMC Testing	
15.207/RSS-247/15.107 Cond RF Emi on AC Mains. Range: 150KHz-30MHz. Leads Tested: L1 & Neut Power: 120VAC, 60Hz. Limits: 15.207/RSS-247 Modes: (1) All Tx ON, use for all CERT PL-CE Data [w/ 1 GDO type] Modes: (1) All Tx OFF for Digital Device 15.109/ICES-003 [w/ 3 GDOs]	
15.207/RSS-247 RF Emi AC Mains PL Cond	NOTE: Digital Device Cond EMI testing per 15.109/ICES-003 performed on 3 GDO types having most full-featured configuration: (1) Liftmaster Model [TBD] (1) Raynor Model [TBD] (1) Chamberlain Model [TBD]
15.247/RSS-247/15.109 Rad Spur Emi, BEC & EIRP Test: Preliminary & final measurements: 30MHz-25GHz Power: 120VAC, 60Hz. Modes: (1) RT-WIFI/Sec3.0 BLE/FHSS [w/ 1 GDO type] Modes: (1) RT-BLE/FHSS [w/ 1 GDO type] Modes: (1) All Tx OFF, Limits 15.109 & ICES-003 [w/ 3 GDOs]	
15.247/RSS-247 Spur Emi (Radiated) [Multi-Tx] [Dig Device]	NOTE: Digital Device Cond EMI testing per 15.109/ICES-003 performed on 3 GDO types having most full-featured configuration: (1) Liftmaster Model [TBD] (1) Raynor Model [TBD] (1) Chamberlain Model [TBD]
Test Report [Multi-Tx] RE & CE [Dig Device]	No testing, reference existing data
USA & Canada Certifications	
FCC Certification	FCC ID: HBW0454X1 for all FCC Certs Board Variants: 003-0458-2, 003-0458-3 (1) RSS-247 Cert for RT WiFi & RT BLE (1) RSS-247 Cert for 900MHz FHSS
ISED Canada Certification	IC ID: 2666A-0454X1 for all CAN Certs Board Variants: 003-0458-2, 003-0458-3