

EM Series (M.2)



5G Module Features and Benefits

- Accelerate deployment and streamline logistics
- Protect your data and minimize risk
- Speed up development time and simplify integration complexity

5G RedCap

Module	Region (Carrier)	Bands	Fallback
EM8695	Global AT&T (FirstNet), Verizon, T-Mobile, Telstra, DoCoMo, SoftBank, KDDI	LTE: B1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 18, 19, 20, 25, 26, 28, 30, 34, 38, 39, 40, 41, 42, 43, 48, 66, 70, 71 5G NR: n1, 2, 3, 5, 7, 8, 12, 13, 14, 18, 20, 25, 26, 28, 30, 38, 40, 41, 48, 66, 70, 71, 77, 78, 79	LTE 4G

5G mmWave and Sub-6

Module	Region (Carrier)	Bands	Fallback
EM9293	AT&T (FirstNet), Verizon, NTT Docomo, T-Mobile, Telstra, Softbank	Sub-6 GHz: n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n39, n40, n41, n48, n66, n70, n71, n75, n76, n77, n78, n79	4G, 3G
EM9291	Global (AT&T (FirstNet), Verizon, T-Mobile, Telstra, NTT Docomo, Softbank)	Sub-6 GHz: n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n70, n71, n75, n76, n77, n78, n79	4G, 3G
EM9190	Global (AT&T (FirstNet), Verizon, NTT Docomo, T-Mobile, Planned: Telstra)	mmWave: n257, n258, n260, n261 Sub-6 GHz: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79	4G, 3G
EM9191	Global (AT&T (FirstNet), Verizon, NTT Docomo, T-Mobile, Planned: Telstra)	Sub-6 GHz: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79	4G, 3G

EM Series (M.2)



4G LTE Advanced Pro (Cat-20)

Module	Region (Carrier)	Bands	Fallback
EM7690	Global (AT&T (FirstNet), Verizon, NTT Docomo, T-Mobile, Planned: Telstra)	LTE: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71	3G

4G LTE Advanced Pro (Cat-13)

Module	Region (Carrier)	Bands	Fallback
EM7590	Global (AT&T (FirstNet), Verizon, T-Mobile, SouthernLINC, Orange, Telstra, Planned: NTT Docomo, Anterix)	LTE: B1, B2, B3, B4, B5, B7, B8, B9, B12, B13, B14, B18, B19, B20, B25, B26, B28, B29, B32, B38, B39, B40, B41, B42, B43, B48, B66, B71, B106*	3G

4G LTE Advanced Pro (Cat-12)

Module	Region (Carrier)	Bands	Fallback
EM7595	Global (Planned: AT&T (FirstNet), Verizon, T-Mobile, SouthernLINC, Orange, Telstra, NTT Docomo, Anterix)	LTE: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B29, B32, B38, B39, B40, B41, B42, B43, B48, B66, B71, B106*	3G
EM7565	Global (AT&T, Verizon, Sprint, NTT Docomo, Telus, Softbank, US Cellular, Telstra, SouthernLINC, T-Mobile, KDDI, Korea Telecom, Deutsche Telekom)	LTE: B1, B2, B3, B4, B5, B7, B8, B9, B12, B13, B18, B19, B20, B26, B28, B29, B30, B32, B41, B42, B43, B46, B48, B66	3G
EM7511	Americas (AT&T – FirstNet, Verizon, Sprint, Telus, US Cellular, SouthernLINC, Rogers, T-Mobile)	LTE: B1, B2, B3, B4, B5, B7, B8, B9, B12, B13, B14, B18, B19, B20, B26, B29, B30, B32, B41, B42, B43, B46, B48, B66	3G

***SKU dependent.**

4G LTE Advanced (Cat-7)

Module	Region (Carrier)	Bands	Fallback	
EM7411	NAM (AT&T, T-Mobile, Verizon, US Cellular, Telus, SouthernLINC)	LTE: B2, B4, B5, B7, B12, B13, B14, B25, B26, B41, B42, B43, B48, B66, B71	3G	
EM7421	EMEA and APAC (Planned: Telstra)	LTE: B1, B3, B7, B8, B20, B28, B32, B38, B40, B41, B42, B43	3G	
EM7431	Japan (Softbank, NTT Docomo, KDDI)	LTE: B1, B3, B5, B8, B18, B19, B39, B41, B42, B43	3G	

MC Series (Mini Card)



4G LTE Advanced (Cat-6 and Cat-7)

Module	Region (Carrier)	Bands	Fallback	
MC7411	NAM (T-Mobile, AT&T, Verizon, US Cellular, Telus, SouthernLINC)	LTE: B2, B4, B5, B7, B12, B13, B14, B25, B26, B41, B42, B43, B48, B66, B71	3G	
MC7421	EMEA and APAC (Planned: Telstra)	LTE: B1, B3, B7, B8, B20, B28, B32, B38, B40, B41, B42, B43	3G	
MC7431	Japan (NTT Docomo, Planned: KDDI, Softbank)	LTE: B1, B3, B5, B8, B18, B19, B39, B41, B42, B43	3G	



Mini Card Accessory Board

Module	Region (Carrier)	Bands	Fallback	
WP7607 Accessory Board	EMEA (Planned: Semtech)	LTE Cat-4: B1, B3, B7, B8, B20, B28	2G, 3G	
WP7610 Accessory Board	Americas (AT&T – FirstNet, Verizon, Planned: Semtech)	LTE Cat-4: B2, B4, B5, B12, B13, B14, B17, B66	3G	

Smart Modules



4G Cat-4

Module	Region (Carrier)	Bands	Fallback	Edge Processing
RC7611	Americas (AT&T, T-Mobile, Verizon, Sprint, Planned: Semtech)	LTE: B2, B4, B5, B12, B13, B14, B25, B26, B66, B71	-	-
RC7620	EMEA, Brazil, Taiwan, Australia (Telstra, Planned: Semtech)	LTE: B1, B3, B7, B8, B20, B28	2G, 3G	-
RC7630	Japan, Korea (NTT Docomo, KDDI, LGU+, KT, SKT (Data Only))	LTE: B1, B3, B5, B7, B8, B18, B19, B21	-	-
WP7605	Japan (NTT Docomo (data only), Softbank (data only/LTE only), KDDI (data only), Planned: Semtech)	LTE: B1, B3, B8, B11, B18, B19, B21	3G	✓
WP7607	EMEA (Deutsche Telekom, Planned: Semtech)	LTE: B1, B3, B7, B8, B20, B28	2G, 3G	✓
WP7608	India, China (Planned: Semtech)	LTE: B1, B3, B5, B8, B40, B41*	2G, 3G	✓
WP7609	Australia, Brazil, Korea (Telstra, LGU+, Planned: Semtech)	LTE: B1, B3, B5, B7, B8, B28	2G, 3G	✓
WP7611	Americas (Verizon, AT&T, T-Mobile, Sprint (data only), Planned: Semtech)	LTE: B2, B4, B5, B12, B13, B14, B25, B26, B66, B71	3G	✓

4G Cat-1bis

Module	Region (Carrier)	Bands	Fallback	Edge Processing	
RC7110	Americas (AT&T, Verizon, Anterix)	LTE: B2, B4, B8, B12, B13, B66	-	-	
RC7120	EMEA (Orange), APAC	LTE: B1,B3, B7, B8, B20, B28	-	-	

4G Cat-1

Module	Region (Carrier)	Bands	Fallback	Edge Processing	
RC7611-1	Americas (AT&T, T-Mobile, Verizon, Sprint, Planned: Semtech)	LTE: B2, B4, B5, B12, B13, B14, B25, B26, B66, B71	-	-	
RC7620-1	EMEA, Brazil, Taiwan, Australia (Telstra, Planned: Semtech)	LTE: B1, B3, B7, B8, B20, B28	2G, 3G	-	
RC7630-1	Japan, Korea (NTT Docomo, KDDI, LGU+, KT)	LTE: B1, B3, B5, B7, B8, B18, B19, B21	-	-	
WP7607-1	EMEA (Planned: Semtech)	LTE: B1, B3, B7, B8, B20, B28	2G, 3G	✓	
WP7608-1	India, China (Planned: Semtech)	LTE: B1, B3, B5, B8, B40, B41*	2G, 3G	✓	
WP7611-1	Americas (Verizon, AT&T, T-Mobile, Sprint (data only), Planned: Semtech)	LTE: B2, B4, B5, B12, B13, B14, B25, B26, B66, B71	3G	✓	

LTE-M (Cat-M1) / NB-IoT (Cat-NB1)

Module	Region (Carrier)	Bands	Fallback	Edge Processing	
WP7702	Global (AT&T, Semtech, T-Mobile, Verizon)	LTE: B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20, B26, B28	2G	✓	

LPWA Modules



Release 14/15/16/17* Cat-M1 / Cat-NB2

Module	Region (Carrier)	Bands	Fallback
HL7900	Global	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B23*, B25, B26, B27, B28, B66, B85, B255*, B256* <i>*Future firmware release</i>	NTN (future firmware release)

Release 14 Cat-M1 / Cat-NB2

Module	Region (Carrier)	Bands	Fallback
HL7810	Global	B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B17, B18, B19, B20, B23, B25, B26, B27, B28, B66, B85, B255, B256	NTN
HL7812	Global	B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B17, B18, B19, B20, B23, B25, B26, B27, B28, B66, B85, B255, B256	2G, NTN
HL7845	Europe	LTE: B1, B3, B5, B8, B20, B31, B72, B87, B88	–

Release 13 Cat-M1 / Cat-NB1

Module	Region (Carrier)	Bands	Fallback
HL7800	Global (AT&T, Verizon, Sprint, SouthernLINC, Rogers, Telus, NTT Docomo, KDDI, Vodafone, Deutsche Telekom, Telstra, Spark, Semtech)	LTE: B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B17, B18, B19, B20, B25, B26, B27, B28, B66	–
HL7802	Global (AT&T, Orange, Verizon, Vodafone, Semtech)	LTE: B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B17, B18, B19, B20, B25, B26, B27, B28, B66	2G