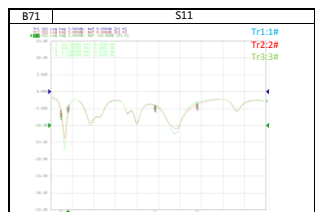
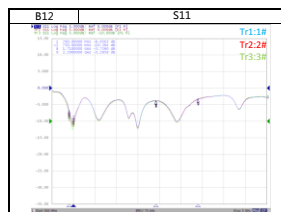
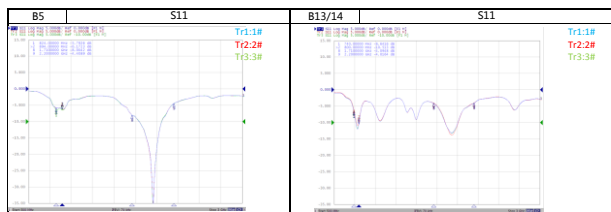


Antenna Specification for model 5B28S9	
Antenna model:	V12(WCDMA,LTE) V11(LoRa) T09(MPS)
Antenna vendor:	Speed
Antenna mesurement information:	SATIMO

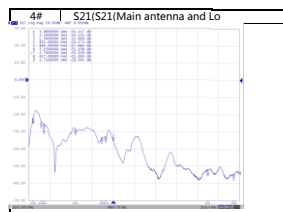
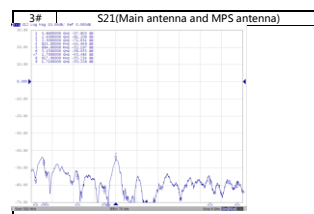
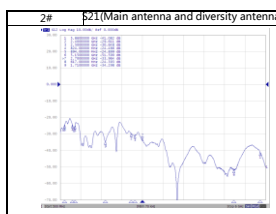
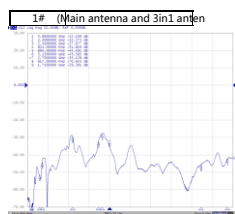
		Frequency (MHz)	Conductive power(PRB)	TRP(dBm)				Conductive PRX	TIS (PRX)			
Active data	B71	664.58	23.14	18.8				-99.00	-01.8			
		680.50	23.34	18.2				-99.70				
		696.42	23.27	17.9				-98.40	-01.1			
		778.58		18.1								
	B13	782.00	23.44	18.3				-97.30				
		785.42		18.3					-01.6			
		789.58		18.0								
	B14	793.00	23.86	18.0				-97.70	-01.9			
		796.42		18.7								
		699.97	23.23	18.5				-98.80				
	B12(SM)	707.41	23.16	18.5				-98.10	-03.4			
		715.03	23.25	18.4				-98.20				
		1851.58	23.66	21.0				-98.00				
	B2	1880.00	23.70	21.3				-99.10				
		1908.42	23.93	20.8				-97.80	-04.2			
		1711.58	23.00	21.5				-97.50				
	B4	1732.50	23.00	21.4				-97.10				
		1753.42	23.00	21.4				-97.60	-05.1			
		825.58	23.14	20.4				-96.90	-02.0			
	B5	836.50	23.28	20.3				-96.50				
		847.42	23.11	20.2				-96.30	-03.3			
		1711.58	22.55	20.1				-97.70				
	B66	1745.00	22.64	20.8				-97.60				
		1778.42	22.68	20.8				-96.80	-04.1			



Band	Passive		
	Freq(MHz)	Efficiency(dB)	Gain (dBi)
B71	610	-6.1	-3.1
	620	-5.5	-2.7
	630	-5.1	-1.8
	640	-5	-2.1
	650	-4.9	-1.8
	660	-5.4	-2.3
	670	-5.5	-1.2
	680	-5.9	-2.2
	690	-6.3	-3.7
	700	-6.9	-4
B12	700	-5.6	-2
	710	-5.4	-1.7
	720	-5	-1.7
	730	-4.5	-2
	740	-4.9	-2.3
B13/14	750	-5.1	-2.4
	760	-5.4	-2.4
	770	-5.4	-2.2
	780	-5.3	-2.2
	790	-5.2	-2.5
B5	800	-5.3	-1.8
	820	-3.3	-0.5
	830	-4.2	-0.5
	840	-3.7	-0.2
	850	-3.2	-0.5
	860	-3.2	0.1
	870	-3.2	0.3
	880	-3.2	0.1
	890	-3.1	0.3
	900	-3.4	-0.2
B2/B66/B4	1710	-2.9	0.1
	1720	-2.9	0.4
	1730	-2.7	0.5
	1740	-2.9	0.1
	1750	-2.9	0.7
	1760	-3.6	-0.1
	1770	-2.9	0.9
	1780	-2.9	0.7
	1790	-2.3	0.5
	1800	-2.5	0.5
	1810	-2.2	0.7
	1820	-2.1	1.1
	1830	-2.2	0.9
	1840	-2	1.1
	1850	-2.4	0.8
	1860	-2.1	1.2
	1870	-2.5	0.8
	1880	-2.3	1.7
	1890	-2.5	0.8
	1900	-1.8	0.8
	1910	-2.3	1.2
	1920	-1.8	1.3
	1930	-2.3	0.4
	1940	-2.1	0.6
	1950	-2.5	1.1
	1960	-2.2	0.8
	1970	-2.4	0.4
	1980	-2.6	0.4
	1990	-2.2	1.1
	2000	-2.7	0.1
	2010	-2.4	1
	2020	-2.9	0.6
	2030	-2.9	0.9
	2040	-2.7	0.2
	2050	-2.6	0.8
	2060	-3.1	0.1
	2070	-2.5	0.4
	2080	-2.2	0.5
	2090	-2.4	0.6
	2100	-2.6	1
	2110	-2.5	0.4
	2120	-2.3	0.7
	2130	-2.8	0.4
	2140	-2.1	0.5
	2150	-3	0.2
	2160	-2.4	0.8
	2170	-3.2	0.7
	2180	-2.6	1.2
	2190	-2.8	0.6
	2200	-2.4	0.2

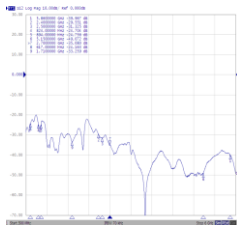
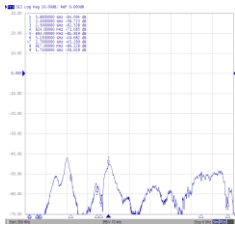
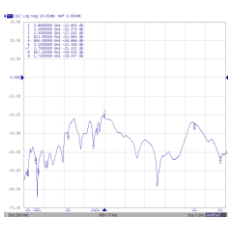
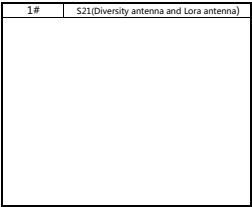
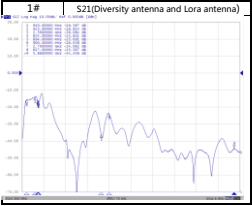
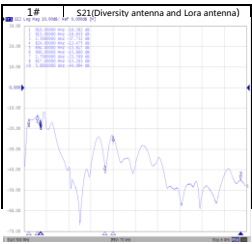
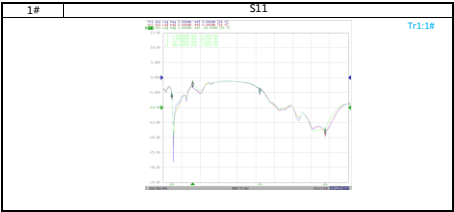
LTE antenna version: V12
Antenna type: Loop Antenna

Antenna Vendor Speed



	1#	Channel	Conductive Sens.	Eff.	Link Budget	TIS DVT			
Active data	B71	664.58	-98	-4.5	-93.5				
		680.5	-98	-4.5	-93.5				
		696.42	-98	-4.5	-93.5	-92.3			
	B13	778.58	-98	-5.5	-92.5				
		782	-98	-5.5	-92.5				
		785.42	-98	-5.5	-92.5	-91.4			
	B14	789.58	-98.5	-5	-93.5				
		793	-98.5	-5	-93.5	-92.1			
		796.42	-98.5	-5	-93.5				
	B12	699.97	-98.3	-5	-93.3				
		707.41	-98.3	-5	-93.3	-92.6			
		715.03	-98.3	-5	-93.3				
	B2	1851.58	-97.8	-4	-93.8				
		1880	-97.8	-4	-93.8				
		1908.42	-97.8	-4	-93.8	-90.6			
	B4	1711.58	-97	-4	-93				
		1732.5	-97	-4	-93				
		1753.42	-97	-4	-93	-92.9			
	B5	825.58	-98.5	-5	-93.5	-92.0			
		836.5	-98.5	-5	-93.5				
		847.42	-98.5	-5	-93.5				
	B66	1711.58	-97	-4	-93				
		1745	-97	-4	-93				
		1778.42	-97	-4	-93	-92.2			

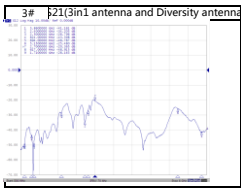
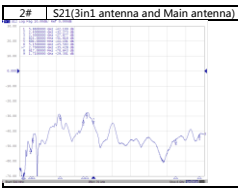
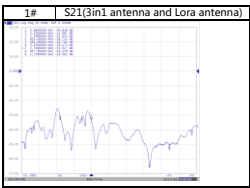
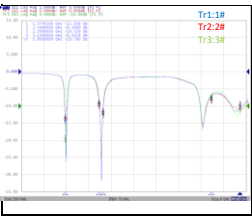
Diversity antenna version: V23



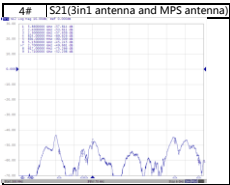
Antenna Vendor Speed

1#	Channel	Conducted power	TRP	TIS	Conducted power	TRP	TIS
B (11M)	1	17.2	13.9		17.5	13.5	
	6	17.3	14.3	-82.6	17.6	13.8	-82.7
	11	17.4	14.6		17.3	14.3	
A (6M)	36	16.5	12.7	-86.4	16.7	13.0	-86.7
	48	16.5	12.5		16.5	12.4	
	149	16.6	12.1	-87.5	16.5	11.9	-87.1
	165	16.4	11.9	-87.9	16.5	12.4	-87.7

3in1 antenna version: V18
Antenna type: IFA Antenna



1#	Passive		
Band	Freq(MHz)	Efficiency(dB)	Gain (dBi)
	1550	-5.3	-1.2
	1560	-5.1	-1.8
	1570	-4.8	-1.9
	1580	-4.4	-2.2
	1590	-4.4	-2.3
	1600	-4.5	-1.8
2.4GHz	2400	-3.4	1.1
	2410	-3.3	1.4
	2420	-3.0	1.6
	2430	-2.9	1.7
	2440	-3.0	1.9
	2450	-2.7	2.0
	2460	-2.9	2.2
	2470	-2.9	2.4
	2480	-3.0	2.3
	2490	-2.6	2.3
	2500	-3.1	2.1
5.1GHz	5150	-3.8	2.2
	5200	-4.0	2.8
	5250	-3.7	3.2
	5300	-3.5	2.6
	5350	-3.5	2.8
	5400	-3.3	3.0
	5450	-2.8	3.0
	5500	-2.4	3.4
	5550	-2.8	3.0
	5600	-2.8	3.4
	5650	-2.5	3.9
	5700	-2.4	3.9
	5750	-2.5	3.5
	5800	-2.7	3.2
	5850	-2.7	3.1

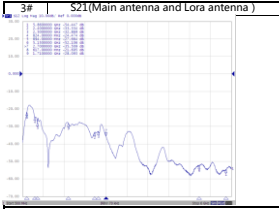
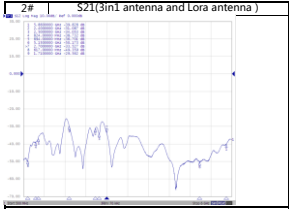
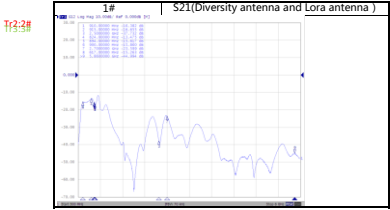
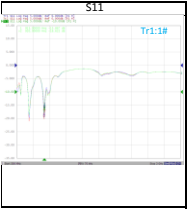


Antenna Vendor Speed

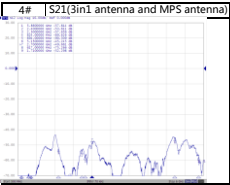
1#	Channel	nductive poi	TRP	TIS
Lora	902.5	25.2	22.4	/
	915	25.5	22.4	/
	927.5	25.3	22.5	/

Lora antenna version: V10

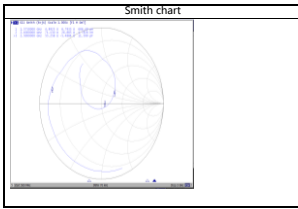
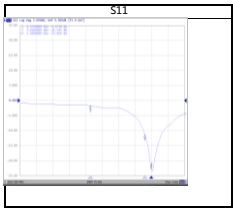
Antenna type: Monopole Antenna



Passive		
Freq(MHz)	Efficiency(dB)	Gain (dBi)
840	-3.9	-0.4
850	-4.4	-0.7
860	-4.1	-0.7
870	-4.6	-0.6
880	-4.7	-0.9
890	-4.5	-0.91
900	-3.9	-0.5
910	-3.1	0.385
920	-2.8	0.465
930	-3.1	0.6
940	-2.4	0.4
950	-2.6	0.7
960	-2.4	0.5
970	-2.8	0.2
980	-3.6	0.1
990	-4.2	-0.3



Antenna Vendor Speed



Antenna type: Monopole Antenna

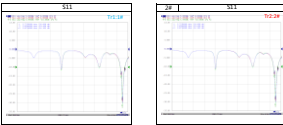
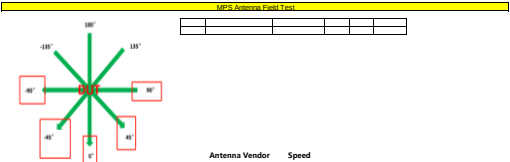
BT antenna passive data			
Frequency	Efficiency%	Efficiency/dB	Peakgain
2400	58%	-2.4	5.3
2410	59%	-2.3	5.4
2420	59%	-2.3	5.4
2430	62%	-2.1	5.4
2440	63%	-2.0	5.5
2450	63%	-2.0	5.0
2460	62%	-2.1	5.3
2470	63%	-2.0	5.5
2480	64%	-2.0	5.6
2490	64%	-1.9	5.8
2500	64%	-1.9	5.6

QBD BLE antenna data				
Freq Band	Freq (MHz)	Channel	Conducted Power (dBm)	TRP (dBm)
BT (1#)	2402-2480	Ch 0	-0.42	-2.63
		Ch 19	-0.39	-2.52
		Ch 39	-0.47	-2.93

Jaws BLE antenna data				
Freq Band	Freq (MHz)	Channel	Power (dBm)	TRP (dBm)
BT (1#)	2402-2480	Ch 0	9.4	7.45
		Ch 19	9.5	7.48
		Ch 39	9.5	7.24

Antenna Vendor Haitong

Antenna version	Antenna record
MPS antenna version: V07 Antenna type: Loop Antenna	



1#	Passive		
Band	Freq(MHz)	Efficiency(dB)	Gain (dB)
	5700	-4.7	-0.2
	5750	-4.5	-0.1
	5800	-4.7	-0.2
	5850	-4.5	-0.1
	5900	-4.9	-0.2

