

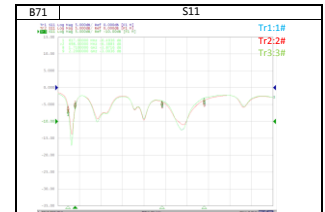
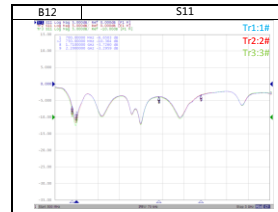
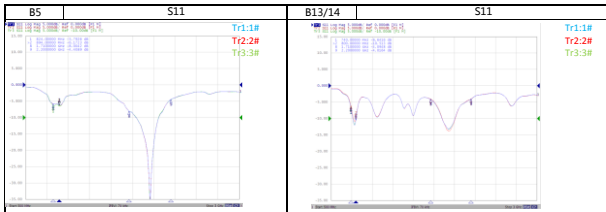
Antenna Specification for model 5B28S9

Antenna model: V12(WCDMA,LTE)
V11(LoRa)
T09(MPS)

Antenna vendor: Speed

Antenna measurement information: SATIMO

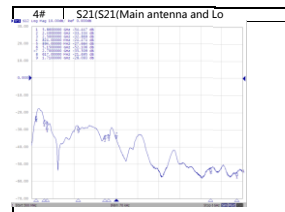
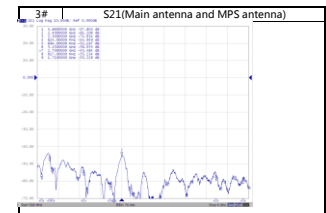
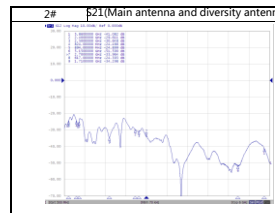
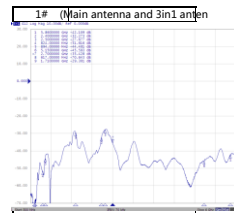
	Frequency (MHz)	Conductive power(PRB)	TRP(dBm)	Conductive PRX	TIS (PRX)	
Active data	B71	664.58	23.14	19.8	-99.00	-01.8
		680.50	23.34	19.2	-99.70	
		696.42	23.27	17.3	-98.40	-01.1
	B13	778.58		19.1		
		782.00	23.44	19.3	-97.30	
		785.42		19.3		-01.0
	B14	789.58		18.0		
		793.00	23.86	18.0	-97.70	-01.9
		796.42		18.7		
	B12(SM)	699.97	23.23	18.5	-98.80	
		707.41	23.16	18.5	-98.10	-03.4
		715.03	23.25	18.4	-98.20	
	B2	1851.58	23.66	21.0	-98.00	
		1880.00	23.70	21.3	-99.10	
		1908.42	23.93	20.8	-97.80	-04.2
	B4	1711.58	23.00	21.5	-97.50	
		1732.50	23.00	21.6	-97.10	
		1753.42	23.00	21.4	-97.60	-05.1
	B5	825.58	23.14	20.4	-96.90	-02.0
		836.50	23.28	20.3	-96.50	
		847.42	23.11	20.2	-96.30	-03.3
	B66	1711.58	22.55	20.1	-97.70	
		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
B13/14	740	-4.9	-2.3
	750	-5.1	-2.4
	760	-5.8	-2.2
	770	-5.1	-1.8
B5	780	-5.3	-2.2
	790	-5.2	-2.5
	800	-5.3	-1.8
	830	-3.3	0.1
	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
B2/B66/B4	890	-3.1	0.3
	900	-3.4	-0.2
	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	-2.9	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	

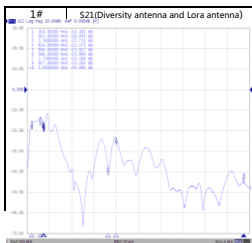
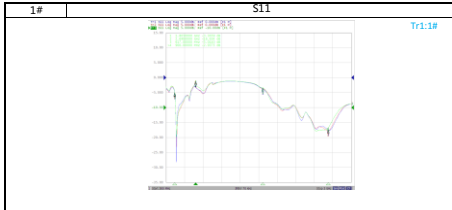
LTE antenna version: V12
Antenna type: Loop Antenna

Antenna Vendor Speed

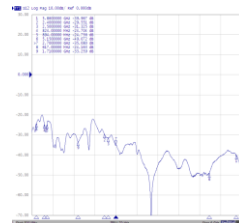
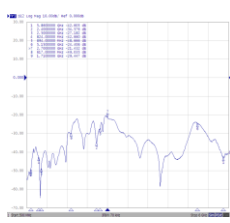
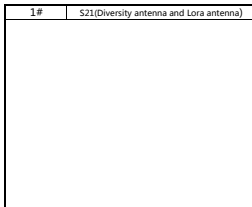
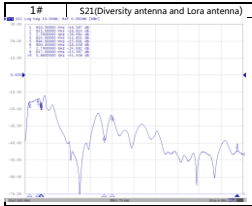


1#	Channel	Conductive Sens.	Eff.	Link Budget	TIS DVT			
B71	664.58	-98	-4.5	-93.5				
	680.5	-98	-4.5	-93.5				
	696.42	-98	-4.5	-93.5	-92.3			
B13	778.58	-98	-5.5	-92.5				
	782	-98	-5.5	-92.5				
	785.42	-98	-5.5	-92.5	-91.4			
B14	789.58	-98.5	-5	-93.5				
	793	-98.5	-5	-93.5	-92.1			
	796.42	-98.5	-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	-93.6			
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

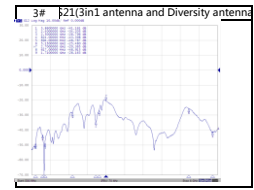
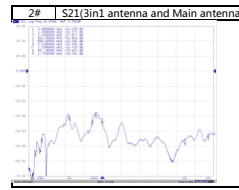
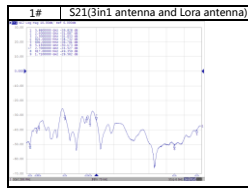
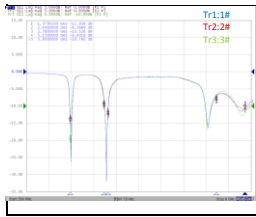


Antenna Vendor Speed

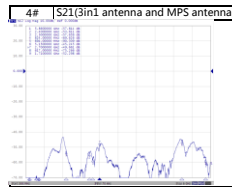


1#	Channel	Conducted power	TRP	TIS	Conducted power	TRP	TIS
B (11M)	1	17.2	13.9		17.5	13.5	
	6	17.3	14.3	-82.6	17.6	13.8	-82.7
	11	17.4	14.6		17.3	14.3	
	16	16.5	12.7	-85.4	16.7	13.0	-85.7
A (6M)	48	16.5	12.5		16.5	12.4	
	149	16.6	12.1	-87.5	16.5	11.9	-87.1
	165	16.4	11.9	-87.9	16.5	12.4	-87.7

3in1 antenna version: V18
Antenna type: IFA Antenna



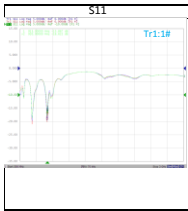
1#	Passive		
Band	Freq(MHz)	Efficiency(dB)	Gain (dBi)
	1550	-5.3	-1.2
	1560	-5.1	-1.8
	1570	-4.8	-1.9
	1580	-4.4	-2.2
	1590	-4.4	-2.3
	1600	-4.5	-1.8
2.4GHz	2400	-3.4	1.1
	2410	-3.3	1.4
	2420	-3.0	1.6
	2430	-2.9	1.7
	2440	-3.0	1.9
	2450	-2.7	2.0
	2460	-2.9	2.2
	2470	-2.9	2.4
	2480	-3.0	2.3
	2490	-2.6	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	



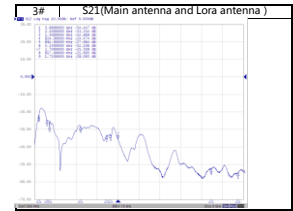
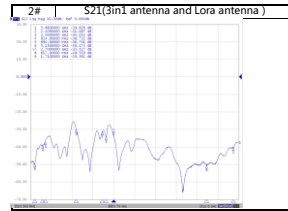
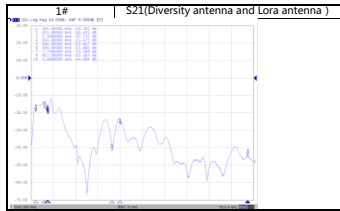
Antenna Vendor Speed

1#	Channel	Inductive pow	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

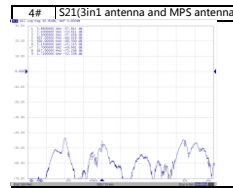


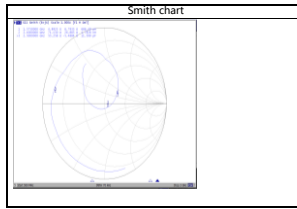
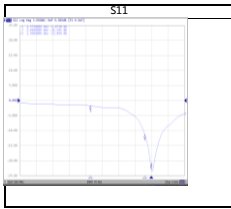
Tr2:2#



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

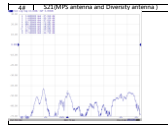
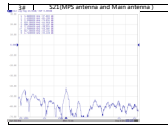
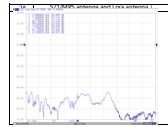
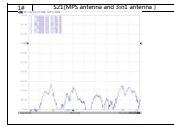
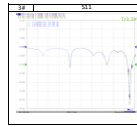
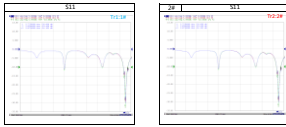
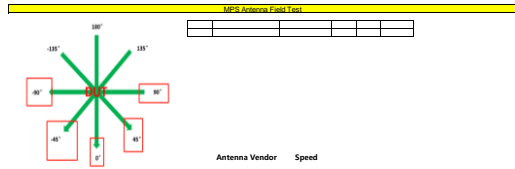
BT antenna passive data			
Frequency	Efficiency%	Efficiency/dB	Peakgain
2400	58%	-2.4	5.3
2410	59%	-2.3	5.4
2420	59%	-2.3	5.4
2430	62%	-2.1	5.4
2440	63%	-2.0	5.5
2450	63%	-2.0	5.0
2460	62%	-2.1	5.3
2470	63%	-2.0	5.5
2480	64%	-2.0	5.6
2490	64%	-1.9	5.8
2500	64%	-1.9	5.6

OBD 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	Conducted 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 enclosure
MPS antenna version: V07 Antenna type: Loop Antenna	



LP	Passive					
Band	Frequency	Efficiency	Gain (dBi)			
1125	1170	1200	1245	1290	1335	1380

Band	Frequency	Efficiency	Gain (dBi)			
1125	1170	1200	1245	1290	1335	1380

Band	Frequency	Efficiency	Gain (dBi)			
1125	1170	1200	1245	1290	1335	1380

