ID	#	WBS Code	Title	Additional Title	Planned Start	Given Duration	Planned End
fsYZqA0-QDWC_zwylw1n_Q	**0**	**0**	**Tracker_Schedule_Final**		**1 Jan 2016**		**16 Mar 2026**
iaUJFiENRYKSOuf37IlnqQ	**1**	**1**	**External Milestones & Common Projects**		**1 Jan 2016**		**16 Mar 2026**
CJmIirm3Q3e-pj9b1JCXrQ	2	1.1	VL+ proto development		1 Jan 2016	70 weeks	22.05.17
bb7RBR6HSp2_TvwZYbR0wg	3	1.2	VL+ proto available (EM)	VL.1	22 May 2017		22.05.17
WBMIvqk3Ri6D71lJvkqXjw	4	1.3	VL+ iterations		23 May 2017	120 weeks	11 Oct 2019
ZBWa1AbcQeWUpVeJDknIHw	5	1.4	First VL+ production items available (EM)	VL.2	11 Oct 2019		11 Oct 2019
djxi1Xk7T-y1VKngKmtrgQ	6	1.5	lp-GBT development		1 Jan 2016	135 weeks	6 Sep 2018
vG21FOuySBGliCsZwUiBUQ	7	1.6	lp-GBT proto available (EM)	LPGBT.1	6 Sep 2018		6 Sep 2018
2nPFEkRWQia1YlfPUG781A	8	1.7	lp-GBT iterations		7 Sep 2018	100 weeks	7 Sep 2020
4S_4b0dMR76iwVAnOxeqHQ	9	1.8	First lp-GBT production items available (EM)	LPGBT.2	7 Sep 2020		7 Sep 2020
BhGwL-M5SQesxlUQYKmqiQ	10	1.9	upFEAST and DCDC2S development		1 Jan 2016	50 weeks	15 Dec 2016
bVTymK8eTfuPAo0wnx5Atg	11	1.10	First upFEAST and DCDC2S proto available (EM)	DCDC.1	15 Dec 2016		15 Dec 2016
sp9mZg-dQSqAg9noCyA1Cw	12	1.11	upFEAST and DCDC2S iterations		16 Dec 2016	80 weeks	2 Aug 2018
CJE7MesWRY2hwx9OrsYjJg	13	1.12	upFEAST and DCDC2S final protos available (EM)	DCDC.2	2 Aug 2018		2 Aug 2018
01Z7QDehS6yGZLu_OSvuVg	14	1.13	upFEAST and DCDC2S testing & final iteration		3 Aug 2018	80 weeks	16 Mar 2020
AcgKHB_US_m-wnlM1cqpYw	15	1.14	First upFEAST and DCDC2S production items available (EM)	DCDC.3	16 Mar 2020		16 Mar 2020
rfrGdKbgSK6kvg7Jyb4dMQ	16	1.15	**TDR submission (EM)**	TK.TDR.1	29 June 2017		29 Jun 2017
zMVEsZ2RRMqgrGGTOc-Wnw	17	1.16	**OT EDR (EM)**	OT.EDR	11 Feb 2020		11 Feb 2020
-Q7RKzhdQGaU6_2cVmcz3w	18	1.17	**IT EDR (EM)**	IT.EDR	3 Mar 2021		3 Mar 2021
NhNbqvT5Tv6SqGs13X6zpg	19	1.18	Beam Pipe installation (EM)	BEAMPIPE	31 July 2020		31 July 2020
zFO6WwNNSvahxFnLABRMIw	20	1.19	**OT Installation (EM)**	OT.INST	19 Dec 2025		19 Dec 2025
uMmSoMRZRTynLx1ooDymyg	21	1.20	**IT Installation (EM)**	IT.INST	16 Mar 2026		16 Mar 2026
pWra0on-Q5Sit8pn1KczBA	**22**	**1.21**	**TDR**		**1 Jan 2016**		**28 Jun 2017**
K48CNo2uQN2pdyc4n5Aczg	23	1.21.1	Low-level reconstruction		1 Jan 2016	30 weeks	28 July 2016
EKJssmnqTVOd6vsGrUimIA	24	1.21.2	Tracking		20 May 2016	20 weeks	6 Oct 2016
gt-EmgoaRYWKB1_H4a0ZFA	25	1.21.3	TK TDR layout defined (LM)	TK.TDR.2	28 July 2016		28 July 2016
7TXzIql4RWuaMKT1ul600A	26	1.21.4	Validation		7 Sep 2016	8 weeks	1 Nov 2016
vJoRawITRgS4HDDwPvHN1Q	27	1.21.5	Performance studies		2 Nov 2016	12 weeks	9 Feb 2017
QaiU8py-RKuf2QFK7NRBLQ	28	1.21.6	Assemble document		19 Sep 2016	16 weeks	24 Jan 2017
L5qAXFZuT7m7GRa_mL3exg	29	1.21.7	1st draft ready		24 Jan 2017		24 Jan 2017
Lq8v7wedTvWtrPcQL5B7fg	30	1.21.8	Completion, review		25 Jan 2017		3 May 2017
40noMWZnSLetmc1fxb6hjQ	31	1.21.9	CMS approval		4 May 2017	8 weeks	28 Jun 2017
wghS3igVRvGbO9Np_RASSw	**32**	**2**	**Outer Tracker**		**1 Jan 2016**		**19 Dec 2025**
2Q3twQMiQXKz19ZLTUjrAg	**33**	**2.1**	**OT Front-End**		**1 Jan 2016**		**11 Mar 2025**
EO4hhbysQFWGRxW5XWE-5w	**34**	**2.1.1**	**OT sensors**		**1 Jan 2016**		**7 Nov 2023**
k-bw4CXkSHOKIL9zDWnctA	35	2.1.1.1	Design of PS-p and PS-s sensors		1 Jan 2016	45 weeks	10 Nov 2016
v-U7NxQiTnyobfNreDxxQw	36	2.1.1.2	PS-p and PS-s sensors prototyping		11 Nov 2016	50 weeks	13 Nov 2017
htG8VFMIRF2kdfkUw5UkfA	37	2.1.1.3	2S sensor prototyping		1 Jan 2016	80 weeks	31 July 2017
pWUeluoBQ2KrugGZ7RBJmg	38	2.1.1.4	Publish OT Sensors Market Survey (LM)	OT.SI.1	1 Feb 2016		1 Feb 2016
c6I8CiAJRBq9olLdO1eRYA	39	2.1.1.5	Close OT sensors MS Survey (LM)	OT.SI.2	9 Sep 2016		9 Sep 2016
TtWdzAVTRIG0AES2QXMlcQ	40	2.1.1.6	Qualification of MS companies		12 Sep 2016	120 weeks	18 Feb 2019
zEKqLsV6RY2u6Wbr-huRrA	41	2.1.1.7	Publish OT Sensor Invitation to Tender (HM)	OT.SI.3	18 Feb 2019		18 Feb 2019
OTZjjmLnQLKYo6_VZRvBqQ	42	2.1.1.8	OT sensors contract (HM)	OT.SI.4	5 Aug 2019		5 Aug 2019
whWGajkAQMywK4jYhMogSA	43	2.1.1.9	Test of 2S pre-production sensors		24 June 2020	30 weeks	3 Feb 2021
RjVhsrtuQZCMC5-gJyn5cg	44	2.1.1.10	Test of PS pre-production sensors		24 June 2020	30 weeks	3 Feb 2021
nNFwA43KSgCGlF2yqdnK1g	45	2.1.1.11	5% of OT sensors received (HM)	OT.SI.5	3 Feb 2021		3 Feb 2021
1ownpvn6RvmyhqRRCiiamw	46	2.1.1.12	Test of 2S production sensors		17 Mar 2021	130 weeks	12 Sep 2023
a0fwn7PJTwOCB7Y9wHWRUQ	47	2.1.1.13	Test of PS production sensors		12 May 2021	130 weeks	7 Nov 2023
XWq9i-QQSDu0qu6xhDzJpg	48	2.1.1.14	30% of OT sensors received (HM)	OT.SI.6	5 July 2022		5 July 2022
mO0oePYJRJKQWMu672gilg	49	2.1.1.15	All sensors received (HM)	OT.SI.7	7 Nov 2023		7 Nov 2023
5V4FiigeRLGZdwyipBz14g	**50**	**2.1.2**	**OT FE ASICs**		**1 Jan 2016**		**6 July 2021**
Ym4jFxSyRtmiYGmGBvpiUQ	51	2.1.2.1	Design of proto CBC		1 Jan 2016	30 weeks	28 July 2016
x1hZz20TTDaEuadDSjp6QQ	52	2.1.2.2	Proto CBC submission (LM)	OT.FE.1	28 July 2016		28 July 2016
Zu4T5FSlQBqr1pNW356E7Q	53	2.1.2.3	Proto CBC validation		21 Oct 2016	50 weeks	23 Oct 2017
EoIws8nRRx-sk5TMGIzzRA	54	2.1.2.4	Design of proto MPA/SSA		1 Jan 2016	84 weeks	28 Aug 2017
2OiWFC_vTASM3IKtKsbKwA	55	2.1.2.5	Proto MPA/SSA submission (HM)	OT.FE.2	28 Aug 2017		28 Aug 2017
wXyYBBbzRxOlKMMN5PlEOA	56	2.1.2.6	Proto MPA/SSA validation		21 Nov 2017	40 weeks	13 Sep 2018
KKqWLdseS_CsKu6sOxO-oA	57	2.1.2.7	Design of first CIC proto		1 Jan 2016	100 weeks	4 Jan 2018
f9vHey78Tr6NhYoRvvxYwg	58	2.1.2.8	First CIC proto submission (HM)	OT.FE.3	4 Jan 2018		4 Jan 2018
Pehmrl72SyGprb_9_iIhkQ	59	2.1.2.9	First CIC proto validation		30 Mar 2018	40 weeks	18 Jan 2019
kGN2oK5CSBewYLEzOFg5vA	60	2.1.2.10	CIC final proto design		8 June 2018	30 weeks	18 Jan 2019
iAy9jT3_RFC2e2e4fsTcfw	61	2.1.2.11	CIC final proto submission (HM)	OT.FE.4	18 Jan 2019		18 Jan 2019
IewveabWSeyq6b-bU9j8bA	62	2.1.2.12	CIC final proto validation		15 April 2019	20 weeks	30 Aug 2019
m77xsNclTeuJJSRq98sCAQ	63	2.1.2.13	CBC production submission (HM)	OT.FE.5	20 Dec 2019		20 Dec 2019
mFXeskG2SDSNk645aVrXVg	64	2.1.2.14	CBC wafers UBM & dicing		31 Mar 2020	40 weeks	19 Jan 2021
A-De12-eSVSGvxKZLfj2LQ	65	2.1.2.15	CIC/MPA/SSA production submission (HM)	OT.FE.6	22 June 2020		22 Jun 2020
h1giYPZ1QneqKPEZx858pw	66	2.1.2.16	CIC/MPA/SSA wafer UBM and dicing		15 Sep 2020	40 weeks	6 July 2021
me4VvJj2TJylv6p5JxC4GQ	**67**	**2.1.3**	**OT MaPSA**		**1 Jan 2016**		**15 Aug 2023**
zienEFe2QWat9urdzFjUqA	68	2.1.3.1	MaPSA-light qualification		1 Jan 2016	30 weeks	28 July 2016
3POYqdl3RVCKLD1WB-XNEQ	69	2.1.3.2	MaPSA-light qualified at 3 companies (LM)	OT.MaPSA.1	28 July 2016		28 July 2016
LLLjyKsTSna3E_TJL-HxqA	70	2.1.3.3	Design of MaPSA dummy		1 Jan 2016	40 weeks	6 Oct 2016
7o6b0lFqSNiRhQ8CVqFfcA	71	2.1.3.4	Production of MaPSA dummy assemblies at companies		7 Oct 2016	50 weeks	9 Oct 2017
pNLCZKmvSJG6MacY7dqbWw	72	2.1.3.5	Full-size MaPSA dummy qualified (LM)	OT.MaPSA.2	9 Oct 2017		9 Oct 2017
krjY0Y96Qk2PBfSanzQVDQ	73	2.1.3.6	Final MaPSA design		11 April 2017	40 weeks	1 Feb 2018
8xnle5kdTn2-uYDBejiRpA	74	2.1.3.7	MaPSA final proto order (HM)	OT.MaPSA.3	1 Mar 2018		1 Mar 2018
IGFimrWdRKaT_laYNmss7w	75	2.1.3.8	MaPSA final proto validation		25 May 2018	40 weeks	15 Mar 2019
ZU6rgl7iTeq2dzrM3q2i8Q	76	2.1.3.9	Qualification of companies for MaPSA production		18 Mar 2019	40 weeks	20 Dec 2019
3NV6qayRQZW9b_b-rj1oFg	77	2.1.3.10	Launch MaPSA Price Enquiry (HM)	OT.MaPSA.4	20 Dec 2019		20 Dec 2019
FBuRHYoERr2w2T1Mfavtag	78	2.1.3.11	Test of pre-production MaPSAs		20 Jan 2021	20 weeks	8 June 2021
CSxACpUNQNCBQcWsRiN-5A	79	2.1.3.12	5% of MaPSAs received (HM)	OT.MaPSA.5	8 June 2021		8 June 2021
dQcugiDSRO-3QUEzMa66og	80	2.1.3.13	Test of production MaPSAs		7 July 2021	110 weeks	15 Aug 2023
jzPNc2EBTw6Ja0udydWV9Q	81	2.1.3.14	30% of MaPSAs received (HM)	OT.MaPSA.6	21 June 2022		21 Jun 2022
g4BdxhCxRRmCMF22LTjrXg	82	2.1.3.15	All MaPSAs received (HM)	OT.MaPSA.7	15 Aug 2023		15 Aug 2023
XxU9JL70SFegTC5ECnZBBQ	**83**	**2.1.4**	**OT Hybrids**		**1 Jan 2016**		**11 Apr 2023**
zoxmFVMJSxCVzFEazPMGHw	84	2.1.4.1	Qualification of Market Survey companies		1 Jan 2016	24 weeks	16 Jun 2016
z1j99TKmQo28r53j8sYqdQ	85	2.1.4.2	Close OT Hybrid Market Survey (LM)	OT.HY.1	16 June 2016		16 Jun 2016
XGIqUUo9QFSY8-haiwYgHA	86	2.1.4.3	Launch OT Hybrid Invitation to Tender (HM)	OT.HY.2	20 Dec 2019		20 Dec 2019
lYuGtXeNTySRuTZvi09I3Q	**87**	**2.1.4.4**	**2S Front End Hybrid**		**1 Jan 2016**		**14 Mar 2023**
uPGKqoIaReerV8vGLy8HuQ	88	2.1.4.4.1	2S FEH first full-size proto design		1 Jan 2016	90 weeks	9 Oct 2017
7H49jmO-TFyKRqJFW9oSug	89	2.1.4.4.2	2S FEH first full-size proto order (LM)	OT.HY.3	9 Oct 2017		9 Oct 2017
k38DQwtARdSY1nmZJ4YZVw	90	2.1.4.4.3	2S FEH first full-size proto validation		19 Jan 2018	30 weeks	16 Aug 2018
wt0MTGtdSOCxP4C59wmf7A	91	2.1.4.4.4	2S FEH final proto design		8 June 2018	36 weeks	1 Mar 2019
ErHbgDexTgSwnE0cuDL8dQ	92	2.1.4.4.5	2S FEH final proto order (LM)	OT.HY.4	1 Mar 2019		1 Mar 2019
HYY03rg5TZGHszag-XkSpg	93	2.1.4.4.6	2S FEH final proto validation		27 May 2019	30 weeks	20 Dec 2019
2ybgFwTNQaS_zVAg79jYbw	94	2.1.4.4.7	Test of 2S pre-production FEH		10 Nov 2020	20 weeks	13 Apr 2021
bxHpvLg_QQKobZVu2NId3A	95	2.1.4.4.8	Test of 2S production FEH		14 April 2021	100 weeks	14 Mar 2023
v9jX4THmTO-ZTkim03-J3Q	**96**	**2.1.4.5**	**PS Front End Hybrid**		**1 Jan 2016**		**11 Apr 2023**
e2afN8HQRW2hT_XkgMMr4g	97	2.1.4.5.1	PS FEH full-size demo design		1 Jan 2016	30 weeks	28 July 2016
XD9N_dGOSXuEbpzElX5hXw	98	2.1.4.5.2	PS FEH full-size demo order (LM)	OT.HY.5	21 Aug 2016		21 Aug 2016
D4jbc1xfSVC-mSgZ93PuZg	99	2.1.4.5.3	PS FEH full-size demo validation		14 Nov 2016	30 weeks	27 Jun 2017
hXGdWlPESbmF5qxMGV37jQ	100	2.1.4.5.4	PS FEH full-size proto design		10 Oct 2017	30 weeks	24.05.18
vrrkFZrPReWq29C0QcVV8Q	101	2.1.4.5.5	PS FEH full-size proto order (LM)	OT.HY.6	24 May 2018		24.05.18
jb8e2poHRfyMNkPvQz987Q	102	2.1.4.5.6	PS FEH full-size proto validation		17 Aug 2018	30 weeks	29 Mar 2019
dtvKWYyiTQCLC3kUQqZg-g	103	2.1.4.5.7	PS FEH final proto design		21 Jan 2019	40 weeks	25 Oct 2019
4BiTgBo5RGmEwHe8A3Q1CA	104	2.1.4.5.8	PS FEH final proto order (LM)	OT.HY.7	25 Oct 2019		25 Oct 2019
27L9MjoWQi-h7CujwG4edg	105	2.1.4.5.9	PS FEH final proto validation		4 Feb 2020	20 weeks	22 Jun 2020
rBmwQBM2RzaQrFq5QRGnVg	106	2.1.4....	Test of PS pre-production FEH		10 Nov 2020	24 weeks	11.05.21
5EyjKWT8StaH2a170E129w	107	2.1.4....	Test of PS production FEH		12 May 2021	100 weeks	11 Apr 2023
cJ4-uZQ8SbucvrJO5Ik9dA	**108**	**2.1.4.6**	**2S SErvice Hybrid**		**1 Jan 2016**		**15 Mar 2023**
h_0b9X9NSnKZwgyXpv14OQ	109	2.1.4.6.1	2S SEH demo iterations		1 Jan 2016	50 weeks	15 Dec 2016
IrZuVQ-_SH-enqEY5gL3Sg	110	2.1.4.6.2	2S SEH full-size proto design		2 Dec 2016	24 weeks	5 June 2017
b33zOw5XSi-W0sdzx4ap2Q	111	2.1.4.6.3	2S SEH full-size proto order (LM)	OT.HY.8	6 Sep 2018		6 Sep 2018
qq-JN_QgSOamDLN1XVa3ow	112	2.1.4.6.4	2S SEH full-size proto validation		30 Nov 2018	24 weeks	31.05.19
fb5QykfOQBWe3XCYvadwRg	113	2.1.4.6.5	2S SEH final proto design		3 June 2019	12 weeks	23 Aug 2019
eirwuTkASHCtVjSJydKcTg	114	2.1.4.6.6	2S SEH final proto order (LM)	OT.HY.9	23 Aug 2019		23 Aug 2019
sPvblpVCSdGWFSLT-vaamA	115	2.1.4.6.7	All 2S hybrids final protos ordered (HM)	OT.HY.13	23 Aug 2019		23 Aug 2019
xyJnP6XwQsC2pi2Fppm6PA	116	2.1.4.6.8	2S SEH final proto validation		18 Nov 2019	20 weeks	20 Apr 2020
boXko2eJThuogAiODl7_vw	117	2.1.4.6.9	Test of 2S pre-production SEH		8 Sep 2020	20 weeks	9 Feb 2021
9ea7XiX_SJyHh6EHeFyKzA	118	2.1.4....	5% of 2S hybrids received (HM)	OT.HY.15	14 April 2021		14 Apr 2021
OOEduMbyTOWaD3vH7MYEaA	119	2.1.4....	Test of 2S production SEH		17 Mar 2021	100 weeks	14 Feb 2023
zAAAWJKdQQORYBRzTBFBPw	120	2.1.4....	30% of 2S hybrids received (HM)	OT.HY.17	19 Jan 2022		19 Jan 2022
53dsBiFkTuuDrjTSL4XTGg	121	2.1.4....	All 2S hybrids received (HM)	OT.HY.19	15 Mar 2023		15 Mar 2023
WB9FNpdqQMmUJ-AV-b8moQ	**122**	**2.1.4.7**	**PS Service Hybrids**		**9 Sep 2016**		**11 Apr 2023**
Tj70ksUrR8OtmDpM43iOJg	**123**	**2.1.4.7.1**	**PS ReadOut Hybrid**		**9 Sep 2016**		**31.05.19**
pD1q-xzaRU27k4_NcH7MQg	124	2.1.4....	PS ROH demo iterations		9 Sep 2016	50 weeks	11 Sep 2017
wyAbf4XjTQuOVZ1Kt9Q5QA	125	2.1.4....	PS ROH first full-size proto design		6 June 2017	24 weeks	20 Nov 2017
5qKt1iW9TziZeSaOdTobIQ	126	2.1.4....	PS ROH first full-size proto order (LM)	OT.HY.10	6 Sep 2018		6 Sep 2018
0LdwXzrJRm6qwu_bv6lBJA	127	2.1.4....	PS ROH first full-size proto validation		30 Nov 2018	24 weeks	31.05.19
7fSJIQA9RMqKSgjv3fNDWQ	**128**	**2.1.4.7.2**	**PS POwer Hybrid**		**9 Sep 2016**		**15 Mar 2019**
51O7DpfMSaO6MBTGPrVx0g	129	2.1.4....	PS POH demo iterations		9 Sep 2016	50 weeks	11 Sep 2017
28Aazv_FScGOyGWNhE__OA	130	2.1.4....	PS POH first full-size proto design		6 June 2017	24 weeks	20 Nov 2017
QtFE5MqPTIeHyLaKgHYC_w	131	2.1.4....	PS POH first full-size proto order (LM)	OT.HY.11	21 June 2018		21 Jun 2018
NFAF8Yk5Q7GuGCX62dXIFA	132	2.1.4....	PS POH first full-size proto validation		14 Sep 2018	24 weeks	15 Mar 2019
qPeVsyFMTIKwLuJwHWCefQ	133	2.1.4.7.3	PS POH+ROH final proto design		18 Mar 2019	20 weeks	2 Aug 2019
ag28eSq4QdWxnTnFSYye3w	134	2.1.4.7.4	PS POH+ROH final proto order (LM)	OT.HY.12	2 Aug 2019		2 Aug 2019
4lt214vkRj-ID4Zc8TniJQ	135	2.1.4.7.5	All PS hybrids final protos ordered (HM)	OT.HY.14	25 Oct 2019		25 Oct 2019
zYK1RvenTqut2KVMWg4JeQ	136	2.1.4.7.6	PS POH+ROH final proto validation		28 Oct 2019	24 weeks	27 Apr 2020
d7CUr6qWSD2TOIQpAqCM1A	137	2.1.4.7.7	Test of PS pre-production POH+ROH		8 Sep 2020	20 weeks	9 Feb 2021
fW7XzJSCTnCBAAQtLAHuYw	138	2.1.4.7.8	5% of PS hybrids received (HM)	OT.HY.16	11 May 2021		11.05.21
SJ2NwKBrTgGyjYh680Fj2Q	139	2.1.4.7.9	Test of PS production POH+ROH		12 May 2021	100 weeks	11 Apr 2023
3QWWzKktRrmy33xHiEMIhQ	140	2.1.4....	30% of PS hybrids received (HM)	OT.HY.18	15 Feb 2022		15 Feb 2022
Q5OLULMaSKaX-symAAX7yA	141	2.1.4....	All PS hybrids received (HM)	OT.HY.20	11 April 2023		11 Apr 2023
3PeLCEECT02PYaBzNKtSNg	**142**	**2.1.5**	**OT module mechanics**		**1 Jan 2016**		**26 Apr 2022**
dnrmM8yOSdStZB0n52xoLw	143	2.1.5.1	Optimization of 2S and PS module mechanics		1 Jan 2016	120 weeks	24.05.18
nh_bVl6zQnuWEXUpSsIpyA	144	2.1.5.2	Test of thermal prototypes		24 Aug 2016	120 weeks	30 Jan 2019
-OHmdibtQl6g_isGgDffoA	145	2.1.5.3	Qualification of mech. parts production options		7 Oct 2016	120 weeks	15 Mar 2019
soMBo9-IQCa-8SAU6PD3Kw	146	2.1.5.4	OT module mechanics finalized (HM)	OT.MO.1	30 Jan 2019		30 Jan 2019
v24rPV7DQJ-czAxUvAB_VA	147	2.1.5.5	Adaptation of designs to final sensors thicknesses		6 Aug 2019	24 weeks	4 Feb 2020
fbPo_fgBQJSbKHweHdNSEQ	148	2.1.5.6	Procurements of raw materials		5 Feb 2020	30 weeks	1 Sep 2020
uqENC_uZQ2iaG-KjzThRrQ	149	2.1.5.7	Pre-production of mech. parts		1 April 2020	20 weeks	18 Aug 2020
oJkRuzXkQz2GsOtB3IiNqg	150	2.1.5.8	Production of mech. parts 2S modules		17 Mar 2021	50 weeks	1 Mar 2022
Z-k9jPy1TTq1ogYJFxWZOQ	151	2.1.5.9	Production of mech. parts PS modules		12 May 2021	50 weeks	26 Apr 2022
xRu1kU_wRS6kSBBPqXbetg	**152**	**2.1.6**	**OT module assembly**		**29 July 2016**		**30 Jan 2024**
T1-rkJqeSaC8bMQBSqgnkw	153	2.1.6.1	Mini PS module assembly and testing		29 July 2016	30 weeks	13 Mar 2017
G1Yuaw2JR0-q7dKwUPrqjw	154	2.1.6.2	2S early proto assembly and testing		13 April 2018	40 weeks	1 Feb 2019
A1R7AkCkQlOkVRMbmAG7LQ	155	2.1.6.3	PS early proto assembly and testing		9 Nov 2018	30 weeks	21 Jun 2019
w1qe5KoRSwC_hLPMKPnXoA	156	2.1.6.4	2S module design finalized (LM)	OT.MO.2	31 May 2019		31.05.19
ZauxWHHeQ8atNiY-Il59mQ	157	2.1.6.5	Equipping OT module assembly centers		17 Oct 2017	80 weeks	3 June 2019
6qb09sosQxK5rTNY8Rlsxw	158	2.1.6.6	2S final proto assembly and testing		3 June 2019	30 weeks	13 Jan 2020
FJtc7p9WQxaGapec16Gquw	159	2.1.6.7	2S module design validated (HM)	OT.MO.3	11 Feb 2020		11 Feb 2020
okt11P4eTumLaCQKKbcYUw	160	2.1.6.8	PS module design finalized (LM)	OT.MO.4	4 Feb 2020		4 Feb 2020
Tse-KAo0RdiugEV1Mals5w	161	2.1.6.9	PS final proto assembly and testing		5 Feb 2020	30 weeks	1 Sep 2020
rkqJnU7tR1mzY19OsJz8JA	162	2.1.6.10	PS module design validated (HM)	OT.MO.5	1 Sep 2020		1 Sep 2020
gFytEdHPQDim7fqyOXHexg	163	2.1.6.11	2S Module pre-production & testing		20 Jan 2021	30 weeks	17 Aug 2021
nGHQyryuRDqcU_OiJPbhiA	164	2.1.6.12	PS Module pre-production & testing		17 Mar 2021	30 weeks	12 Oct 2021
eQNjFHPxT2ybqxx6SK-ZSA	165	2.1.6.13	2S module production proven (HM)	OT.MO.6	16 Mar 2021		16 Mar 2021
NEUtQo6BSTud5Fb1xfJiUw	166	2.1.6.14	PS module production proven (HM)	OT.MO.7	11 May 2021		11.05.21
gE2Xr78cTeO8M13JtUO7lw	167	2.1.6.15	2S Module production & testing		18 Aug 2021	120 weeks	5 Dec 2023
ol808dBIQcWlkyykFzkFww	168	2.1.6.16	PS Module production & testing		13 Oct 2021	120 weeks	30 Jan 2024
oUW4eLAPTEyMBYMyepkMeA	169	2.1.6.17	30% of OT modules built (HM)	OT.MO.8	27 Sep 2022		27 Sep 2022
yS06JZ0fS1iT2J8gPDpCKA	170	2.1.6.18	60% of OT modules built (HM)	OT.MO.9	4 July 2023		4 July 2023
ktSyEUo5QLGzFF2x7heqmg	171	2.1.6.19	All OT modules built (HM)	OT.MO.10	30 Jan 2024		30 Jan 2024
0Q8_WvFiRjuT1lL3wIFnhQ	**172**	**2.1.7**	**OT Mechanical structures**		**1 Jan 2016**		**19 Dec 2023**
_9PoGNLzTySw-lVDQYl4-Q	**173**	**2.1.7.1**	**Module-supporting sub-structures**		**1 Jan 2016**		**19 Dec 2023**
7aL0inpCTM6d4TnnMHX4iQ	174	2.1.7.1.1	Design & prototype TEDD Dees		1 Jan 2016	180 weeks	2 Aug 2019
6-tktQQhT_ylYP4tWNBSBQ	175	2.1.7.1.2	TEDD Dee concept defined (LM)	OT.ME.1	24 Mar 2016		24 Mar 2016
eKo3-ziETZuzLH7iX6attg	176	2.1.7.1.3	Design & prototype TBPS planks and rings		1 Jan 2016	180 weeks	2 Aug 2019
-4sz1zAvSeC93IZvdRQqtQ	177	2.1.7.1.4	Tilted TBPS concept viable (LM)	OT.ME.2	19 May 2016		19.05.16
Rdo2S0sJQ_KsAkbL6amdPQ	178	2.1.7.1.5	Design & prototype TB2S ladders		1 Jan 2016	180 weeks	2 Aug 2019
oSJmLQRTRzW5b5FGeLmGYQ	179	2.1.7.1.6	All OT substructures designs validated (HM)	OT.ME.3	2 Aug 2019		2 Aug 2019
6w0k_wNRTYu7KS9IboiRhg	180	2.1.7.1.7	Pre-production of TEDD Dees		25 Nov 2019	60 weeks	16 Feb 2021
wX76DRNJSU6GgB5TrLMeEA	181	2.1.7.1.8	Pre-production of TBPS planks and rings		25 Nov 2019	60 weeks	16 Feb 2021
9nol7OrYSQuWWJvTvLFt-A	182	2.1.7.1.9	Pre-production of TB2S ladders		23 June 2020	60 weeks	31 Aug 2021
wLw4wmTqQr6X6EW_YsINCA	183	2.1.7....	First production sub-structures validated (HM)	OT.ME.4	31 Aug 2021		31 Aug 2021
zErk4KDoT1KhADxuvY2VXw	184	2.1.7....	Production of TEDD Dees		12 May 2021	120 weeks	29 Aug 2023
Mps3NmwEQk2MfCDXebYrdA	185	2.1.7....	Production of TBPS planks and rings		17 Feb 2021	120 weeks	6 June 2023
1ROWb1OPQmSkrsSCFFNjwQ	186	2.1.7....	Production of TB2S ladders		1 Sep 2021	120 weeks	19 Dec 2023
53_SrKLLRWGrnWivCYF0LQ	187	2.1.7....	30% OT substructures built (HM)	OT.ME.5	14 Mar 2023		14 Mar 2023
uMtMrWQbQxCUg5N52eAb1w	188	2.1.7....	All OT substructures built (HM)	OT.ME.6	19 Dec 2023		19 Dec 2023
7tDVgEtNQ2it_ERYzE2joQ	189	2.1.7.2	TB2S wheel design		1 Jan 2016	200 weeks	20 Dec 2019
pUSD8ibNR96mC3gC1m5Xwg	190	2.1.7.3	TBPS assembly design		1 Jan 2016	200 weeks	20 Dec 2019
oMVxevk3SlC68Jm232x15A	191	2.1.7.4	TEDD assembly design		1 Jan 2016	200 weeks	20 Dec 2019
K_BcUy1wTZG8YatznxnmeA	192	2.1.7.5	OT detector mechanics designs completed (HM)	OT.ME.7	20 Dec 2019		20 Dec 2019
uUzk6guDQACvixUh348fQA	193	2.1.7.6	Design and protptype Bulkheads and feedthroughs		1 Sep 2017	120 weeks	6 Feb 2020
NCUcnPDlT7yRMuDo_SBiNg	194	2.1.7.7	Design of Tracker Support Tube		7 Feb 2018	100 weeks	6 Feb 2020
bjrvS-UFQBa3V3wML48y2w	195	2.1.7.8	OT integration mechanics designs completed (HM)	OT.ME.8	6 Feb 2020		6 Feb 2020
L-FBc_k-RjiD4uKyo3a06Q	196	2.1.7.9	Procurement of raw materials and components		5 Aug 2019	120 weeks	21 Dec 2021
cX3HrA7EQOyKdANJ_xP3ZA	197	2.1.7.10	Construction of TB2S Wheel		1 Sep 2021	80 weeks	14 Mar 2023
uD69d_IwSYirwNzBUQOOrg	198	2.1.7.11	Construction of TBPS and TEDD mechanicsl parts		1 Sep 2021	80 weeks	14 Mar 2023
2iTps5kyTyWqEqlFv5lX-Q	199	2.1.7.12	Construction of TST, Bulkheads and other mechanics		10 Nov 2021	80 weeks	23.05.23
8-mUHXJGQeWrPHhXddsKGw	200	2.1.7.13	All OT mechanical parts built (HM)	OT.ME.9	23 May 2023		23.05.23
BoZ0WPsaSluXGDhpxHwrdA	**201**	**2.1.8**	**OT Integration**		**17 Aug 2018**		**11 Mar 2025**
f9xsY97aR7u6CTZNYOzghQ	202	2.1.8.1	Equipping OT integration centers		17 Aug 2018	160 weeks	27 Oct 2021
ZZT04rAWRM2VsEHaGfjFhA	203	2.1.8.2	Integration and testing of TB2S ladders		27 Oct 2021	120 weeks	13 Feb 2024
ERioDkQ3T3C-YdlH7AyYQw	204	2.1.8.3	Integration and testing of TBPS planks and rings		27 April 2022	100 weeks	26 Mar 2024
ZQ0oN1tRSjS7vYG7C1SDTA	205	2.1.8.4	Integration and testing of TEDD Dees		27 April 2022	100 weeks	26 Mar 2024
PFdMM5xpQmqDyZinrpqslQ	206	2.1.8.5	30% OT substructures integrated (HM)	OT.IN.1	29 Aug 2023		29 Aug 2023
WDUs5xuRQ8WX4VZTNZIbRw	207	2.1.8.6	Integration of TB2S		10 May 2023	80 weeks	19 Nov 2024
wtgXiq-qR0i6jXffVZWiiA	208	2.1.8.7	Integration of TBPS		22 May 2024	12 weeks	13 Aug 2024
Cx_0TyV2TjadxHI7L43Pog	209	2.1.8.8	Integration of TEDDs		22 May 2024	12 weeks	13 Aug 2024
NNAjZM2bTDKOhiUVR9U6Jw	210	2.1.8.9	Packing and shipping TEDDs		14 Aug 2024	6 weeks	24 Sep 2024
5RMYAmYySpSux4Ir5D_T8Q	211	2.1.8.10	OT Sub-Detectors completed (HM)	OT.IN.2	19 Nov 2024		19 Nov 2024
5jgQSGbxQ7qIGj7QVYMqUQ	212	2.1.8.11	Outer Tracker Integration		20 Nov 2024	16 weeks	11 Mar 2025
v51kTzL9QBWEJWyjoFLHTw	213	2.1.8.12	Outer Tracker completed (HM)	OT.IN.3	11 Mar 2025		11 Mar 2025
SwMUywAgSOyR_0XTYcRkow	**214**	**2.2**	**OT Back-End**		**1 Jan 2016**		**19 Nov 2024**
Sj6XDfJrRjuEpdgU8Moclw	**215**	**2.2.1**	**Power distribution system**		**1 Jan 2016**		**18 Jun 2024**
k8n9I6dgQj6hK1aUh8eTaA	216	2.2.1.1	Evaluation of demo chains		1 Jan 2016	120 weeks	24.05.18
Eh17zJOHRI2JNFi2QORCsg	217	2.2.1.2	OT Power system concept defined (HM)	OT.BE.1	24 May 2018		24.05.18
-t0XcOFUTq6opBKRZcM_9w	218	2.2.1.3	System development		25 May 2018	40 weeks	15 Mar 2019
iku7wd2ASQyrWYGYoROx7w	219	2.2.1.4	Definition of system specs		18 Mar 2019	20 weeks	2 Aug 2019
Dwv8A0BzQhu5_mulhAHRzg	220	2.2.1.5	Construction and operation of final proto chains		5 Aug 2019	40 weeks	25.05.20
7lOxunCHRcSLkQ15aiSP2g	221	2.2.1.6	OT final proto power chains validated (HM)	OT.BE.2	25 May 2020		25.05.20
ddbUZHY7RJGFmzebRHoGGQ	222	2.2.1.7	Procurement of hardware		26 May 2020	160 weeks	4 July 2023
9XGWc3u_RlyrrDzp1PSKsQ	223	2.2.1.8	Construction of system for TK commissioning		22 Dec 2021	30 weeks	19 July 2022
Hao-8B54QCKOOYLi9LcIGw	224	2.2.1.9	Power System for OT commissioning built (HM)	OT.BE.3	19 July 2022		19 July 2022
ILFz2T1SR5KgEx1IhYmBwA	225	2.2.1.10	Operation of system for TK commissioning		20 July 2022	30 weeks	14 Feb 2023
5MdqlfoLRVe4xwnDZKrukw	226	2.2.1.11	Construction of P5 system		15 Feb 2023	50 weeks	30 Jan 2024
LF2LmAexTw-PSFaNR6pTZQ	227	2.2.1.12	30% of OT PS supply units validated (HM)	OT.BE.4	8 Aug 2023		8 Aug 2023
Pv1dN_uZR-Cz1P2E27ujWA	228	2.2.1.13	Commissioning of P5 system		31 Jan 2024	20 weeks	18 Jun 2024
XRFsYfy1RiWRoj80JLx5kw	229	2.2.1.14	OT power system ready for detector (HM)	OT.BE.5	18 June 2024		18 Jun 2024
A5LJBpHITg6AiAVBciClbw	**230**	**2.2.2**	**Data processing system**		**1 Jan 2016**		**19 Nov 2024**
NIrHKJ84Szmjc2a1pr8rHA	231	2.2.2.1	L1 tracking demonstrators		1 Jan 2016		7 Dec 2016
QUnU4g7AS22zqYoHo2vBOA	232	2.2.2.2	Review of L1 tracking demonstrators (LM)	OT.BE.6	8 Dec 2016		8 Dec 2016
gHg-ihBZScSdguDDqBQnKw	233	2.2.2.3	Evaluation of existing ATCA boards		1 Jan 2016	50 weeks	15 Dec 2016
xWnXHyKbRDioC6J4aTS-4A	234	2.2.2.4	Definition of Data Processing System concept		16 Dec 2016	40 weeks	9 Oct 2017
Q3rJWOovSsiTEOm41Pv0cQ	235	2.2.2.5	Development and test of BE boards		10 Oct 2017	80 weeks	24.05.19
apGJclp_TiWj9Xpi7j3YYw	236	2.2.2.6	DTC readout of proto-modules		3 Aug 2018	60 weeks	11 Oct 2019
D5NQ-OskS2mtXJKM_B-A3w	237	2.2.2.7	DTC-TF system test		3 Aug 2018	60 weeks	11 Oct 2019
NhXrTFvITbSLGcoOu9wCOQ	238	2.2.2.8	OT BE system specs defined (HM)	OT.BE.7	11 Oct 2019		11 Oct 2019
8Yqb5kPRT3K3suxl_rR_jw	239	2.2.2.9	Development of final prototypes		14 Oct 2019	40 weeks	3 Aug 2020
7A3I3K6ISweawsB97K1u9A	240	2.2.2.10	OT BE boards final prototypes validated (HM)	OT.BE.8	3 Aug 2020		3 Aug 2020
bojffYDmS_6Eh_UnEwMmcA	241	2.2.2.11	Construction of system for OT commissioning		31 Mar 2021	40 weeks	4 Jan 2022
jbIxZaJGQhizXv7s2ctbyQ	242	2.2.2.12	DP system for commissioning ready (HM)	OT.BE.9	4 Jan 2022		4 Jan 2022
xKWZgwI7R5yynzGQZIqnjQ	243	2.2.2.13	Operation of system for OT commissioning		5 Jan 2022	40 weeks	11 Oct 2022
0-QxFuY5RBuNW8tnomNuwQ	244	2.2.2.14	Construction of P5 system		25 May 2022	80 weeks	5 Dec 2023
p91LzHD0TGuSdJuNDrGuTQ	245	2.2.2.15	30% of OT DP boards validated (HM)	OT.BE.10	28 Feb 2023		28 Feb 2023
s65ze-bMRdO1udT5ixePcg	246	2.2.2.16	Commissioning of P5 system		6 Dec 2023	50 weeks	19 Nov 2024
jHPKr2h7Tu-zFCTe4fq3Vg	247	2.2.2.17	OT Data Processing System ready for detector (HM)	OT.BE.11	19 Nov 2024		19 Nov 2024
ykMQ7d4-RlO8vD-cn4nRPg	248	2.2.3	BE Electronics Systems for OT commissioning ready (LM)	OT.BE.12	14 Feb 2023		14 Feb 2023
CmDZxbdRQNC9lXHSuA2REg	249	2.3	Outer Tracker Commissioning		12 Mar 2025	30 weeks	7 Oct 2025
LPv1uZ9wTQ-rSebdtOl7HA	250	2.4	Packing and shipping		10 Oct 2025	10 weeks	19 Dec 2025
GbMbMhnKQRefqtv04r9KiQ	**251**	**3**	**Inner Tracker**		**1 Jan 2016**		**11 Mar 2026**
Y7irWrXkTHeNQlZ14SeR1w	**252**	**3.1**	**IT Front-End**		**1 Jan 2016**		**21.05.25**
d7whQhK5TW22ghvylEf31w	**253**	**3.1.1**	**IT Sensors**		**1 Jan 2016**		**28 Aug 2023**
JZ_onoTtRvy-eSjo56Oj7A	254	3.1.1.1	Qualification of slim-edge planar sensors		1 Jan 2016	120 weeks	24.05.18
bNWFXf6lRLGnsYaw_zQMFA	255	3.1.1.2	Qualification of active-edge planar sensors		1 Jan 2016	120 weeks	24.05.18
F8a6d_otRZuXf2nI97KlHw	256	3.1.1.3	Qualification of 3d sensors		1 Jan 2016	120 weeks	24.05.18
j6aRH-b9Sq-KETeJsYartQ	257	3.1.1.4	Choose pixel sensor scenario for TDR (LM)	IT.SI.1	14 July 2016		14 July 2016
_KoXTNBUTn67l1gQwyYKNA	258	3.1.1.5	Finalize choice and design of sensors		8 Sep 2016	150 weeks	12 Sep 2019
dxd4QcmXQW-gubev76b-Yw	259	3.1.1.6	Publish IT Sensors Market Survey (HM)	IT.SI.2	12 Sep 2019		12 Sep 2019
9UlhOvSjTtKlwmHoGFsd8g	260	3.1.1.7	Qualification of MS Companies		13 Sep 2019	24 weeks	13 Mar 2020
GzZ2fvC5Q-uoeDRWGrwNIA	261	3.1.1.8	Publish IT Sensor Invitation to Tender (HM)	IT.SI.3	13 Mar 2020		13 Mar 2020
TU2ZdyCbSMSfNHq3rPMThQ	262	3.1.1.9	IT sensors contract(s) (HM)	IT.SI.4	28 Aug 2020		28 Aug 2020
SHsZLs1KS7GjZLhdRAp2NQ	263	3.1.1.10	Test of IT pre-production sensors		2 Mar 2021	30 weeks	27 Sep 2021
HN5dkS4aR-CpGTfDMF-ljQ	264	3.1.1.11	5% of IT sensors received (HM)	IT.SI.5	27 Sep 2021		27 Sep 2021
B3HVzfL7RFaiPxRnDyzJOg	265	3.1.1.12	Test of IT production sensors		28 Sep 2021	100 weeks	28 Aug 2023
iFmJXDiLTZeOer2YlnqC5A	266	3.1.1.13	30% of IT sensors received (HM)	IT.SI.6	12 Sep 2022		12 Sep 2022
QwljD9fQTGmAhF3jHS0RKw	267	3.1.1.14	All IT sensors reveived (HM)	IT.SI.7	28 Aug 2023		28 Aug 2023
VpChCfZlQ16bsGzkkalq_A	**268**	**3.1.2**	**IT ReadOut Chip**		**1 Jan 2016**		**20 Jul 2021**
1mocc1J1ScyMcGxIK8YR6g	269	3.1.2.1	TSMC 65 nm radiation qualification		1 Jan 2016	50 weeks	15 Dec 2016
pWww6ywqSnOnz8PCBQgfCQ	270	3.1.2.2	Design and testing of IP blocks		1 Jan 2016	60 weeks	13 Mar 2017
4obHbJgYSdWHFoZ6P8UN5A	271	3.1.2.3	Design of ChiPix65		1 Jan 2016	30 weeks	28 July 2016
mLz4KEtyQQep8ei7hEpG-g	272	3.1.2.4	Submission of ChiPIX65 (LM)	IT.FE.1	28 July 2016		28 July 2016
qaqbcLIVQ5GcTZff190qyg	273	3.1.2.5	Qualification of ChiPIX65		21 Oct 2016	24 weeks	24 Apr 2017
aEitUT0HTvm5VtCQwGiYTQ	274	3.1.2.6	Design of DRAD		1 Jan 2016	24 weeks	16 Jun 2016
NeD_I7XnQf-RF_CfbMp-VQ	275	3.1.2.7	Submission of DRAD (LM)	IT.FE.2	16 June 2016		16 Jun 2016
iCbp_tlQR0ujoo6GbVoV2A	276	3.1.2.8	Qualification of DRAD		9 Sep 2016	24 weeks	13 Mar 2017
cCkbBN0CReeoKN9-Sf_4ZA	277	3.1.2.9	Design of RD53A		1 Jan 2016	64 weeks	10 Apr 2017
-ARfqs0bReWBebEnSffjUA	278	3.1.2.10	Submission of RD53A (HM)	IT.FE.3	28 Aug 2017		28 Aug 2017
wHexZ6lwT3a5EHFxnB_igg	279	3.1.2.11	Qualification of RD53A		21 Nov 2017	30 weeks	5 July 2018
dovdJB_0TUicwGvK-77sZQ	280	3.1.2.12	Design of CMS Pixel Chip proto		6 July 2018	50 weeks	5 July 2019
odxujgNiTHy81BSCvcTeBQ	281	3.1.2.13	Submission of PROC proto (HM)	IT.FE.4	5 July 2019		5 July 2019
JY30Y6ubR6iDqYtQmHyvFQ	282	3.1.2.14	Qualification of PROC proto		30 Sep 2019	60 weeks	7 Dec 2020
tMfbS6ArS9SPkgYNUQCS0w	283	3.1.2.15	Design of final PROC		12 May 2020	60 weeks	20 July 2021
vbtij9ikSBa9dGfHs0qiUw	284	3.1.2.16	PROC production submission (HM)	IT.FE.5	20 July 2021		20 July 2021
QzIM5YR4RlOzLI5RA3enQA	**285**	**3.1.3**	**IT modules**		**31 Aug 2018**		**2 July 2024**
qEOj9WBKSh69ECbaXCoDpQ	286	3.1.3.1	Design & assembly demo modules (with RD53A)		28 Sep 2018	60 weeks	6 Dec 2019
hX9RhOQOTg6QdDJGkC9zMQ	287	3.1.3.2	Design and produce hybrids for demo modules		31 Aug 2018	40 weeks	21 Jun 2019
lFd5eEGCSbmH_P4trl_cJA	288	3.1.3.3	Functional Pixel Demo module validated (HM)	IT.MO.1	19 July 2019		19 July 2019
kgcK16k9QYKCwG6OXZlj4A	289	3.1.3.4	Equipping module assembly centers		4 Mar 2019	60 weeks	12.05.20
EzAVjG-zSvWPF0CB015uLA	290	3.1.3.5	Design & assembly proto modules		12 May 2020	50 weeks	11.05.21
U8qYfTdUT0WO-djVEYtORQ	291	3.1.3.6	Design and produce hybrids for proto modules		14 Oct 2019	30 weeks	25.05.20
CZoWkl9tSJa3kXjxUR7xCg	292	3.1.3.7	IT proto modules validated (HM)	IT.MO.2	11 May 2021		11.05.21
fpSjlZMxTt6rfkk3wafkfA	293	3.1.3.8	Module pre-production		5 Jan 2022	30 weeks	2 Aug 2022
Rdr9AbjwR_ygXv6lASH4VQ	294	3.1.3.9	IT module production proven (HM)	IT.MO.3	2 Aug 2022		2 Aug 2022
FhlGDPw-T-KL8CN1kcg3ug	295	3.1.3.10	Module production		3 Aug 2022	100 weeks	2 July 2024
t4tLoA8GSc2pjn6cy_UG4g	296	3.1.3.11	30% of IT modules built (HM)	IT.MO.4	9 May 2023		9 May 2023
HWiQl3q7Q46SCyKY5I1RoQ	297	3.1.3.12	60% pixel modules built (HM)	IT.MO.5	5 Dec 2023		5 Dec 2023
JDNQnbamTxWwKyCinBnJKA	298	3.1.3.13	All pixel modules built (HM)	IT.MO.6	2 July 2024		2 July 2024
ztpffoCyQ76Ysic7Z4dfFA	**299**	**3.1.4**	**IT On-detector power distribution**		**1 Jan 2016**		**20 Jul 2021**
dUsIORvGQqy5xxYJo5dWYA	300	3.1.4.1	Serial power simulations		1 Jan 2016	150 weeks	20 Dec 2018
54wfvuSNR0aJmU2p5zh9yA	301	3.1.4.2	SP Lab tests with FeI4		1 Jan 2016	90 weeks	9 Oct 2017
xfj35NVCTlemvnXG58plHQ	302	3.1.4.3	SP Lab tests with RD53A		2 Mar 2018	90 weeks	6 Dec 2019
-DvExAl5QRWsnzLm6JNuRg	303	3.1.4.4	Serial Powering validated (HM)	IT.EL.1	6 Dec 2019		6 Dec 2019
uwFagw3TSv27F3l9tYo0TQ	304	3.1.4.5	Engineering design of power distribution		9 Dec 2019	80 weeks	20 July 2021
NcP1s6aTREGa1fEpoeUnag	305	3.1.4.6	SP lab tests with PROC		7 Jan 2020	70 weeks	25.05.21
-4bha88nRzml2KXz5mLFlA	306	3.1.4.7	On-detector power distribution fully designed (HM)	IT.EL.2	20 July 2021		20 July 2021
WiRiFVvZRiubX3kFlpw1SA	**307**	**3.1.5**	**IT Data links**		**1 Jan 2016**		**21 Nov 2023**
fSKuAGY8S7uCVAIT2q1wYg	308	3.1.5.1	e-links simulations		1 Jan 2016	80 weeks	31 July 2017
S3EtebItTZWrdw9lmFxT0Q	309	3.1.5.2	e-links demonstrators		1 Jan 2016	80 weeks	31 July 2017
OxSdKPlYTRWQjD_JvtSklg	310	3.1.5.3	Choose IT e-links baseline for TDR (LM)	IT.EL.3	28 July 2016		28 July 2016
Mp9If6o0SaCF0UPLd1DlTQ	311	3.1.5.4	e-link prototypes		1 Aug 2017	120 weeks	20 Dec 2019
10EGPCfbRsKKoz6sWC1eHw	312	3.1.5.5	IT e-links protoptypes validated (HM)	IT.EL.4	20 Dec 2019		20 Dec 2019
lJAOvtTPRo2pK9glFL5SBw	313	3.1.5.6	Development of full readout chain		7 Jan 2020	80 weeks	3 Aug 2021
04jxt4acTx-6ZvesncdnIQ	314	3.1.5.7	IT lpGBT board final prototype (HM)	IT.EL.5	12 Oct 2020		12 Oct 2020
BqytlXkjTeKYL-wgKVl3Qg	315	3.1.5.8	IT Readout chain validated (HM)	IT.EL.6	3 Aug 2021		3 Aug 2021
KswdNhOcQWGiM-Qf52kOfQ	316	3.1.5.9	Production of readout electronics		4 Aug 2021	120 weeks	21 Nov 2023
L6NUmjKNQ6OSTsV3un7bXw	317	3.1.5.10	30% of IT lpGBT boards produced (HM)	IT.EL.7	27 Sep 2022		27 Sep 2022
teqFQ-IEQG-1aNRfK91DHg	318	3.1.5.11	All IT lpGBT boards produced (HM)	IT.EL.8	21 Nov 2023		21 Nov 2023
8ciEE7VcT8OCSmQVo1d8dA	**319**	**3.1.6**	**IT Mechanical Structures**		**1 Jan 2016**		**21 Nov 2023**
a-YdA8vmSDe1IL2NBG918Q	320	3.1.6.1	Conceptual design of extended forward		1 Jan 2016	30 weeks	28 July 2016
y_FK0SSmRKWd-S65ag-5hA	321	3.1.6.2	Baseline forward concept defined (LM)	IT.ME.1	28 July 2016		28 July 2016
laGOdVmgT0eSpns0K4W2ng	322	3.1.6.3	Modelling of TFPX and TEPX structures		29 July 2016	80 weeks	15 Mar 2018
BLQ-b9HQRy-mT_fqYnwFgA	323	3.1.6.4	Engineering design of TBPX TFPX and TEPX structures		16 Mar 2018	80 weeks	11 Oct 2019
mP-hX5zQRZW2ArH62GphGg	324	3.1.6.5	Conceptual design of insertion mechanics		1 Jan 2016	30 weeks	28 July 2016
S1Hl63vaT3i9efoiqAdPlw	325	3.1.6.6	Conceptual design of service arrangement		1 Jan 2016	30 weeks	28 July 2016
zLBb8_ApSoOxmJsjZYx1PQ	326	3.1.6.7	IT integration concept defined (LM)	IT.ME.2	28 July 2016		28 July 2016
ZoouM1TiT3qRD9g4iQ1nCw	327	3.1.6.8	Study of service arrangement		15 Sep 2016	40 weeks	7 July 2017
oCWzfCZ2Q6aWA_pKov1fxg	328	3.1.6.9	Design of service cylinders		10 July 2017	80 weeks	21 Feb 2019
3UsYg893TtGYVowkEwDgpQ	329	3.1.6.10	Structure protoptyping		14 Oct 2019	80 weeks	25.05.21
F0boKJm5TnmNhrCKwGKQRQ	330	3.1.6.11	Service cylinders protoptyping		14 Oct 2019	80 weeks	25.05.21
J3Qn5cH5Rluy98gpWB3_ZA	331	3.1.6.12	TBPX, TFPX and TEPX structures validated (HM)	IT.ME.3	25 May 2021		25.05.21
mdjhbCWPTlifqlEpliwHZw	332	3.1.6.13	Construction of IT structures and service cylinders		26 May 2021	130 weeks	21 Nov 2023
dvPv4OL3SXe4ISfboa0CQQ	333	3.1.6.14	30% of IT structures built (HM)	IT.ME.4	19 July 2022		19 July 2022
pKAZysqaQd-bLT7cPxSsfw	334	3.1.6.15	All IT structures built (HM)	IT.ME.5	21 Nov 2023		21 Nov 2023
w1qPiRI_R36CnGVM2tnimg	335	3.1.6.16	Design and construction of IT Support Tube		16 May 2017	100 weeks	17.05.19
4_NNgGqdSpe8BWvt3bzttA	**336**	**3.1.7**	**IT integration**		**14 Nov 2017**		**21.05.25**
_7RR2CvIRleGx7b39eZ7PA	337	3.1.7.1	IT layout optimization		14 Nov 2017	90 weeks	6 Sep 2019
rKEMjvNJRliobJjphZhFJw	338	3.1.7.2	IT layout fully defined (LM)	IT.IN.1	6 Sep 2019		6 Sep 2019
yvddfU2lQleYpjf-rmTp7Q	339	3.1.7.3	Equipping integration centers		4 Aug 2021	60 weeks	28 Sep 2022
79n-DcTfSGa0noNqfSlubg	340	3.1.7.4	Structure integration & testing		28 Sep 2022	130 weeks	25 Mar 2025
Eppl6ftxSgKzFFvD-EZyZQ	341	3.1.7.5	30% IT structures integrated (HM)	IT.IN.2	21 Nov 2023		21 Nov 2023
zcRV9kFYSJWwT26uEYjwSQ	342	3.1.7.6	TBPX, TFPX, TEPX integration		1 Jan 2025	20 weeks	20.05.25
YHhQ8W4AQzqmsCTUkURgxQ	343	3.1.7.7	TBPX,TFPX, TEPX completed (HM)	IT.IN.3	21 May 2025		21.05.25
cAPmrKs_T5eoioT34sRQKw	**344**	**3.2**	**IT Back-End**		**17 Oct 2016**		**20.05.25**
xijNz3b_QqGCKXYMF3bISA	**345**	**3.2.1**	**Power**		**28 Sep 2018**		**22 Oct 2024**
Yi48vW3fSayGPcUfCZisVQ	346	3.2.1.1	Develop proto power chains		28 Sep 2018	120 weeks	2 Mar 2021
qW2VoNu5S6-GGX8jcjWpHg	347	3.2.1.2	Proto power chain validated (HM)	IT.BE.1	2 Mar 2021		2 Mar 2021
pzbRa56oR5OWiYBtIF3vng	348	3.2.1.3	Define final specs for power chain		3 Mar 2021	30 weeks	28 Sep 2021
fK8aGxzESMiDd-_u8Wg2DA	349	3.2.1.4	Procurement of hardware		3 Mar 2021	120 weeks	20 Jun 2023
hQSYeZ-QScO1jh8i85CuAw	350	3.2.1.5	Construction of system for IT commissioning		8 Dec 2021	40 weeks	13 Sep 2022
psHCEFN2R9SUhRhN6gikhw	351	3.2.1.6	Power system for IT commissioning built (HM)	IT.BE.2	13 Sep 2022		13 Sep 2022
oWvV2SxQTVehKNEyN0B9Vg	352	3.2.1.7	Operation of system for IT commissioning		14 Sep 2022	80 weeks	26 Mar 2024
sUPPHJiuRxK--EUT8UlVrQ	353	3.2.1.8	Construction of P5 system		1 Feb 2023	60 weeks	26 Mar 2024
hGVQQ_-tSsWy0I4EuRUzCA	354	3.2.1.9	30% of IT PS units validated (HM)	IT.BE.3	29 Aug 2023		29 Aug 2023
SjHPwEkVQLyhZGXOtdO1rA	355	3.2.1.10	Commissioning of P5 system		27 Mar 2024	30 weeks	22 Oct 2024
ZFfPOiruQvq5lvwOeBG5kg	356	3.2.1.11	IT power system ready for detector (HM)	IT.BE.4	22 Oct 2024		22 Oct 2024
8prZmACHTw6Nn-q3pJypPA	**357**	**3.2.2**	**Readout**		**17 Oct 2016**		**20.05.25**
TN94OdI3RwKqGBNWaFhEKw	358	3.2.2.1	Develop readout for RD53A		17 Oct 2016	40 weeks	8 Aug 2017
_s54S_SFSYay_NYgjwVlUg	359	3.2.2.2	Operate RD53 readout		2 Feb 2018	80 weeks	30 Aug 2019
D4YSEshZSPWzj97tyeQiqQ	360	3.2.2.3	Develop proto-DAQ for PROC		21 Dec 2018	20 weeks	24.05.19
wxpkgv7zQdW4IsTu5KajXw	361	3.2.2.4	PROC proto-DAQ operational (HM)	IT.BE.5	24 May 2019		24.05.19
UcDNjYj6Qie_NP0Bzzjyug	362	3.2.2.5	Operate PROC DAQ		25 Nov 2019	40 weeks	14 Sep 2020
bZwPAVMQTbK9Z2rF41E3Qg	363	3.2.2.6	Specs for IT DAQ system defined (HM)	IT.BE.6	14 Sep 2020		14 Sep 2020
WgW8BKB5TYu7JDdnavQpWA	364	3.2.2.7	Development of final prototypes		15 Sep 2020	40 weeks	6 July 2021
KkEFzP0fTPuuHduamOnoIA	365	3.2.2.8	IT DTC final prototypes validated (HM)	IT.BE.7	6 July 2021		6 July 2021
b0nX4BRTSpK5X-MpWNklVw	366	3.2.2.9	Construction of system for IT commissioning		16 Feb 2022	40 weeks	22 Nov 2022
j1DSxe13QA29TtLibrJWIg	367	3.2.2.10	DAQ system for IT commissioning ready (HM)	IT.BE.8	22 Nov 2022		22 Nov 2022
bW0R0m2AQ_W05wrlcS-D6w	368	3.2.2.11	Operation of system for IT commissioning		23 Nov 2022	60 weeks	16 Jan 2024
cO_IHNvWQ0mtlcBMV0nrwQ	369	3.2.2.12	Construction of P5 system		21 June 2023	60 weeks	13 Aug 2024
0bZszAd5TNSLvgoIq_muYg	370	3.2.2.13	30% of IT DTC boards validated (HM)	IT.BE.9	16 Jan 2024		16 Jan 2024
ZFAvovubQyCVRLwyge9zew	371	3.2.2.14	Commissioning of P5 system		14 Aug 2024	40 weeks	20.05.25
JxYAaFuDRhCVENRvxfWJKA	372	3.2.2.15	IT DAQ System ready for detector (HM)	IT.BE.10	20 May 2025		20.05.25
6HkDjDBxRnCj6VcITLvQzg	373	3.2.3	BE Electronics Systems for IT commissioning ready (LM)	IT.BE.11	26 Mar 2024		26 Mar 2024
yXN290xMR1OuhdbS8IuVBA	374	3.3	IT Commissioning		22 May 2025	30 weeks	17 Dec 2025
RQAHoSpQRmKG91zBv5N3Dw	375	3.4	Packing and shipping		18 Dec 2025	12 weeks	11 Mar 2026
TmwcWFDAQfapTJ9gVAwtBg	**376**	**4**	**Cooling**		**1 Jan 2016**		**17 Feb 2025**
4CX7B-2hRj-HTopRRzPCEQ	377	4.1	Definition of system concept		1 Jan 2016	50 weeks	15 Dec 2016
BrmjmnOAT-uIW6c6OLVEKg	378	4.2	Cooling system concept defined (LM)	TK.CO.1	15 Dec 2016		15 Dec 2016
n8XICB4qRqe9owLV-yVKAQ	**379**	**4.3**	**Demo system**		**8 May 2017**		**14 Jun 2021**
1fjdAadsQlGWceAEtwgcqw	380	4.3.1	Specs of demo system		8 May 2017	12 weeks	28 July 2017
v2igzspqSjy4K_57fwflrw	381	4.3.2	Specs of cooling demo system defined (HM)	TK.CO.2	28 July 2017		28 July 2017
pWETphIYQiOZ5RwD3jnQSA	382	4.3.3	Design of demo system		31 July 2017	85 weeks	18 Apr 2019
28DTIdGxT-S3YgT5wDk8cA	383	4.3.4	Procurements		19 April 2019	36 weeks	10 Jan 2020
KnWi-v2ETQmGhikrB3dt4A	384	4.3.5	Cooling demo system designed (HM)	TK.CO.3	18 April 2019		18 Apr 2019
utfuFP1FQcCOcULru19xYQ	385	4.3.6	Assembly & programming of demo system		6 Sep 2019	48 weeks	21 Aug 2020
p6h90LTyS1GKTSWz9vX5kA	386	4.3.7	Cooling demo system built (HM)	TK.CO.4	21 Aug 2020		21 Aug 2020
Aw04e4LcSYOhHnlfdM-Llw	387	4.3.8	Demo commissioning		24 Aug 2020	24 weeks	22 Feb 2021
LFZm6I4tQJ6aPQ3IHmYRsw	388	4.3.9	Demo exploitation		23 Feb 2021	16 weeks	14 Jun 2021
JLqggM6pTzGC0TccedkwLw	389	4.3.10	Review Cooling Demo design and performance (LM)	TK.CO.5	14 June 2021		14 Jun 2021
5k4v8rdCSI6AVCaZdV7Ltg	**390**	**4.4**	**Refurbishment of "TIF" system**		**8 May 2017**		**28 Feb 2020**
8x25pzGwTWWyZJrtjv97cA	391	4.4.1	Define requirements		8 May 2017	30 weeks	1 Dec 2017
O2E--2HHQRadNtsdjKwQjw	392	4.4.2	Design refurbishment		4 Dec 2017	30 weeks	18 July 2018
REGNtgjUTxK_w9g9X9PqjA	393	4.4.3	Implement changes		19 July 2018	30 weeks	28 Feb 2019
pKOUKoIpRCu_toprVyhC9w	394	4.4.4	Commissioning of upgraded TIF system		1 Mar 2019	50 weeks	28 Feb 2020
M8I4Os_fRTqzHlarwYKjEw	395	4.4.5	Cooling system for TK commissioning ready (HM)	TK.CO.6	28 Feb 2020		28 Feb 2020
hBa0Tt1yQJi3LEnRfOyV6Q	396	4.5	Final system design		15 June 2021	30 weeks	10 Jan 2022
ooIKvQwwQYGinE6xW3KY0g	397	4.6	Cooling system design completed (HM)	TK.CO.7	10 Jan 2022		10 Jan 2022
Fo0Y35kLQ-aGnJfWHFbw1A	398	4.7	Procurement of hardware parts		11 Jan 2022	60 weeks	6 Mar 2023
QskDIICiQBuiBsd071g_vw	399	4.8	Construction of cooling plants		5 April 2022	80 weeks	16 Oct 2023
nuTaAYYnQ9yZInSM-Sxqlw	400	4.9	Cooling plants ready for installation (HM)	TK.CO.8	16 Oct 2023		16 Oct 2023
3eY_S9GiRjy7zHfyJAd2cQ	401	4.10	Installation of cooling system		17 Oct 2023	40 weeks	22 July 2024
ZVS-gkD6TBWyZa8LsgnT9w	402	4.11	Commissioning standalone		23 July 2024	30 weeks	17 Feb 2025
wKWRDHAwS16KHZ7Ql_an7w	403	4.12	Cooling system ready for Tracker (HM)	TK.CO.9	17 Feb 2025		17 Feb 2025
EQUwRA6VRquCcxeKHb3lQA	**404**	**5**	**Other systems**		**27 Oct 2017**		**11 Apr 2025**
5hnuDO70TLeW-g3X-yYgxQ	**405**	**5.1**	**Dry Gas System**		**27 Oct 2017**		**11 Apr 2025**
ZZlmHYr3Q1K1Aq7hEASImw	406	5.1.1	System specs		27 Oct 2017	180 weeks	11 Jun 2021
sBd-Mh1zQV2ehJ6SblAlAA	407	5.1.2	Dry gas system specs defined (HM)	TK.OS.1	11 June 2021		11 Jun 2021
zRFD_kU9RgezgA6F5F8uCQ	408	5.1.3	Procurement of hardware		14 June 2021	120 weeks	29 Sep 2023
zX0iTthzQHSPP2hKw4i3Yw	409	5.1.4	Dry gas hardware procured (HM)	TK.OS.2	29 Sep 2023		29 Sep 2023
5F0mn5rbTSW7rcPK6-YmVg	410	5.1.5	Installation		2 Oct 2023	80 weeks	11 Apr 2025
CdsFzFObThKxBxbt1SlQQA	411	5.1.6	Dry gas system ready (HM)	TK.OS.3	11 April 2025		11 Apr 2025
5N8EtoL0TBmJLcXp652bEA	**412**	**5.2**	**Detector Safety System**		**27 Oct 2017**		**11 Apr 2025**
frbmyreBSKaa6QQeCBUiSA	413	5.2.1	System specs		27 Oct 2017	160 weeks	22 Jan 2021
38z0T14pTbGd2rHntRoqJQ	414	5.2.2	DSS specs defined (HM)	TK.OS.4	22 Jan 2021		22 Jan 2021
xRmJW7eoTTGqm6qV55qtCg	415	5.2.3	Procurement of hardware		25 Jan 2021	120 weeks	12.05.23
c3qnwGS6RLayFDHe6xkLog	416	5.2.4	DSS hardware procured (HM)	TK.OS.5	12 May 2023		12.05.23
CF4mmqyHRdurY7_q37z3BQ	417	5.2.5	Construction of system for commissioning		15 May 2023	40 weeks	16 Feb 2024
y1dDOGl6TZ-D78ETAikkuw	418	5.2.6	DSS system for commissioning ready (HM)	TK.OS.6	16 Feb 2024		16 Feb 2024
weyvQYapTwq6OiS06Fw5Xg	419	5.2.7	Construction of system for P5		19 Feb 2024	60 weeks	11 Apr 2025
Ed2XNnPIQjG31NRkxQyjQQ	420	5.2.8	DSS system at P5 ready (HM)	TK.OS.7	11 April 2025		11 Apr 2025